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ABSTRACT

The collection of selected convention papers includes discussions of the application of the ITPA for children with learning disabilities, applications of psychoeducational evaluation, factors in severe reading disability, and initiating statewide programs for the educationally handicapped. Articles also deal with the history and future education of children with learning disabilities, perceptual behaviors and reading disabilities, and the private school and its practical relationship. Abstracts of articles on the following topics are also provided: hyperactive and hypoactive children, cooperative private and public school programs, immediate materials selection, outpatient diagnostic and remedial services, personal adjustment training, and language remediation. (JM)

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LEARNING DISABILITIES

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LEARNING DISABILITIES

APPLICATION OF THE ITPA FOR CHILDREN WITH LEARNING DISABILITIES

by

Judith Weinthaler

A child with a specific learning disability has a learning profile of assets and deficits--strengths in some types of tasks, weaknesses in others. The goal of diagnosis is to draw this learning profile and ascertain the strengths and weaknesses so that from this diagnosis an individualized remedial program may be planned and geared to his specific needs. In order to adequately assess the areas of relative abilities, we must systematically analyze the tasks presented to the child according to specified variables, such as the following six:

1. Level of the task according to a hierarchy of learning experiences:

   a. Sensation--most concrete, earliest, basic level of functioning
   b. Perception
   c. Memory
   d. Symbolization
   e. Conceptualization--most abstract, highest level of functioning

2. The modality of reception: Information may be received through one or more of the following channels:

   a. Auditory
   b. Visual
   c. Tactile

3. The modality of expression:

   a. Auditory-oral (phonemes, words, environmental sounds, etc.)
   b. Motor-tactile-kinesthetic (gesture, pointing, marking, matching, drawing, writing, etc.)

4. The different types of psycholinguistic processes, which are reception, association, or expression

5. The number of modalities involved in the Reception-Association-Expression sequence of a task. For example:

   One modality: Aural-Oral--Listening and speaking
   Two modalities: Aural-Motor--Listening and writing

6. The content of the task: This variable may be broken down into two components:

   a. Verbal-Nonverbal content: A task may be verbal or nonverbal in content, the terms being defined as follows: verbal--having to do with language and verbal communication as opposed to pictures, gestures, facial communication, e.g., phonemes, letters, words both oral and printed, involving both the auditory and visual modalities; and nonverbal--not dealing with language, defined as a verbal symbol system, but with other means of com-

munication, e.g., pictures, gestures, objects, environmental sounds. The word "cat" printed or head is being considered as verbal task content, a picture or the real animal is being termed nonverbal task content. (The above clarification is important as the term "verbal" is used in a somewhat different sense by the authors of the ITPA.

b. Social-Nonsocial content: social--meaningful, a part of the environment with which one interacts (environmental sounds, pictures); nonsocial--nonmeaningful (pure tones, nonsense figures, nonsense syllables or words).

I have attempted to analyze the Illinois Test of Psycholinguistic Abilities according to these six variables but will limit my remarks to the sixth variable of task content, since the ITPA does not stress this component in its model. Based on this analysis several questions should be raised:

1. Can we predict school achievement which is primarily verbal and social in content, from certain nonverbal-nonsocial subtests on the ITPA?

2. Can we predict performance on verbal tasks from tasks of a nonverbal nature?

3. Can we generalize from nonverbal behavior to verbal behavior, and vice versa?

4. Does a child with a specific learning disability necessarily generalize automatically and with facility from one area to the other?

5. What are the implications of this for both diagnosis and remediation?

Questions of this sort must be asked because, as research is showing, there is a difficulty in, or lack of, carryover or generalization between verbal and nonverbal tasks by many children with learning disabilities. Some children do have difficulty coping with both verbal and nonverbal tasks on all or come of the levels of learning (perception, memory, symbolization, conceptualization), but just because a child shows a deficit in one area, either verbal or nonverbal, does not necessarily mean he will have difficulty in the other. The same is true of the social-nonsocial distinction. A child with a learning disability is generally able to perform better with meaningful, social experiences and materials as opposed to nonsense figures and words, but this is not true of all children with learning disabilities. Given a child's inability to perform adequately on one or more of these types of tasks, one cannot generalize this inability to any of the other types of tasks with accuracy and certainty. For example, one child may be able to discriminate animal sounds but not pure tones or phonemes. Another child may be able to discriminate pure tones but not environmental sounds or phonemes.

Since the goal of diagnosis is remediation, we must specify the exact type of difficulty a child is having, including verbal-nonverbal, social-nonsocial variables, so that the remediation is conducted in the appropriate area. In looking carefully at the subtests of the ITPA in terms of this variable of task content, we see that we cannot determine this exact and full diagnosis from this test alone. To avoid overgeneralization, and to draw a complete profile according to <u>all</u> variables, the subtests should be supplemented with other psychological and/or critical observations.

The following subtests and children's scores will serve as illustration of the inability to generalize from one specific subtest to the general category of classification, especially in relation to academic performance.

If the Auditory Reception and Visual Reception subtests are to be compared as to channel of reception, then presumably all other variables should be held

constant. However, the Auditory Reception test is verbal in content, and the Visual Reception test is nonverbal-social. Both yield valuable information but they are not necessarily comparable in terms of an assessment of a child's relative strengths for reception through the auditory versus the visual modality. We are varying both the channel of input and task content.

The Visual Association subtest is nonverbal, and the Auditory Association subtest, on the other hand, is verbal. Many children score very well on the Visual Association subtest and yet when given a silent reading analogies test (comparable in content to the Auditory Association subtest) they do poorly even though they are able to decode the word. However, they must do this decoding auditorily in order to gain meaning from the printed symbol because they are deficient in visual association.

Another subtest, which is nonverbal is Manual Expression. The Verbal Expression subtest, being designed to assess the child's ability to express himself vocally, through the auditory modality, is verbal in task content. If a child performs better in Manual Expression can we necessarily conclude his motor channel for encoding or expression is more intact than his auditory? We might also conclude it was the verbal aspect of the vocal encoding causing him difficulty and that he would have more trouble with motor encoding if we reversed the content of the tasks from Motor nonverbal encoding and Auditory verbal encoding and asked the child to write or copy words (motor verbal encoding) and make appropriate environmental sounds when shown a picture (auditory nonverbal social encoding), showing it was task content and not the modality that was the critical variable. From the Manual Expression subtest we can determine if a child can gesture and express himself symbolically through the motor channel, but we cannot generalize to his ability to express himself through the motor channel in terms of written language, a verbal symbol system.

The Visual Memory subtest, using geometric designs, is both nonverbal and nonsocial (nonmeaningful) in content and therefore tests only one aspect of the general category of visual memory ability. For example, a child, age 9-1, obtained a standard score of 38 on this subtest, a psycholinguistic age of 9-9, and was able to sequence up to six figures correctly. However, based on remedial work with comparable tasks using letters instead of designs, he was able to sequence only three letters correctly. This indicates that even though the test score was high in one aspect of visual memory, we should not automatically generalize to other aspects of visual memory.

Another child, age 8-6, was able to sequence five designs correctly on the ITPA subtest and yet when the content was social, meaningful pictures, he could sequence seven pictures correctly. However, he was able to remember only two letters in their proper sequence. For this child the tasks became increasingly difficult as we changed the task content from pictures, to designs, to letters, and just from the test score we could not have determined this discrepancy in his performance.

The Auditory Memory subtest is nonverbal in nature, repeating a sequence of digits. A child, age 10-0, obtained the following scores on the visual and auditory memory subtests:

Visual Memory	Standard Score: 31	Age: 7-3
Auditory Memory	Standard Score: 31	Age: 6-10

These standard scores were not significantly lower than his general level of functioning as determined by the mean standard score, although his composite psycho-

linguistic age was approximately 3 years below his chronological age and mental age. It we were to commit the error of overgeneralization, we might erroneously conclude that there was no discrepancy between his visual sequential memory and thei auditory sequential memory, both standard scores being 31, and that both auditory and visual memory were below chronological and mental ages. However, when these same skills were tested using different task content we saw that there was a tremendous discrepancy between auditory and visual memory, and that both are not well below CA and MA On the Detroit Test of Learning Abilities (tested at age 10-0) this child performed as follows when compared to the ITPA:

Auditory memory for unrelated words	Age: 4-5 years
Auditory memory for related words (sentence repetition)	5-6
Compared to the ITPA memory for digits	6-10

In other words, his auditory memory skills improved slightly as we changed the content of the task, his best performance being on nonverbal digits (ITPA--age 6-10), his poorest on unrelated words (Detroit--age 4-5), verbal but with relatively little meaning. He scored as follows on the visual memory subtests on the Detroit Test:

Visual memory for objects (NV-S)	Age: 10-5
Visual memory for letters	9-8
Compared to the ITPA memory for nonmeaningful figures	7-3

So from these tests we see his auditory memory for verbal content (words) was at approximately the 5 year level, and that his visual memory for verbal content was at or above the 9 1/2 year level.

While we must be cautious in comparing age scores from different tests, the important thing to note is the approximately 5 year discrepancy in performance on auditory and visual subtests on the Detroit when verbal content was used in the tasks (you will recall there was essentially no discrepancy between visual and auditory memory subtests on the ITPA using nonverbal content). These scores and the discrepancy have also been substantiated through observation and work in remedial session over the past year.

From the one visual memory subtest on the ITPA, it might have been judged that this boy's visual memory was well below age level and not significantly discrepant with his auditory memory ability. However, controlling for task content we see that he performed much lower on visual memory for designs (ITPA) than for letters and pictures (Detroit), the latter Detroit tests being more meaningful than designs. We also see that his auditory memory for verbal content (Detroit) was poorer than for digits (ITPA), and that both auditory verbal subtests (Detroit) were significantly below his visual memory ability (Detroit). It follows logically that remediation has been programed to capitalize on his visual strengths, a conclusion that would not have been self evident had we looked only at one test (ITPA), pointing up the importance of including the variable of task content in an evaluation in order to determine discrepancies such as these in performance.

The sound blending subtest includes both real words and nonsense syllables as stimuli and, considering this subtest as being composed of two tasks, there is a total of 13 tasks in the ITPA. Eight of the 13 tasks consist of nonverbal reception or input, and 8 of the 13 consist of nonverbal expression or output. What is the significance of this type of investigation in terms of the interpretation of a profile of a child failing in the visual verbal and auditory verbal school environ-

ment?

It indicates that caution be exercised when interpreting the scores in relation to academic verbal performance, both auditory and visual, for school age children. Whether the task involves verbal or nonverbal, social or nonsocial content appears to be an important variable in the learning profiles of many children with specific learning disabilities. The ITPA is a very useful instrument for evaluation of learning disabilities if used as part of a total diagnostic battery which investigates other aspects, particularly task content, of the broad categories evaluated in the ITPA. In summary, if a child fails in a particular task we can classify his failure in many broader categories depending upon which variable of the task we choose to use: level of the task (sensation to conceptualization), modality of reception, association or expression, type of psycholinguistic process, or the content of the task. Classification of failure must be more specific rather than general in order to apply appropriate remedial techniques.

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APPLICATIONS OF PSYCHOEDUCATIONAL EVALUATION

by

Anne L. Langstaff

A second grader once informed me that education is "how kids learn stuff." This parsimonious definition is very satisfying because it contains all the essential elements--a who, a what, and a process; it also helps us to identify a critical problem in special education today. Psychologists usually know a lot about children, and something about learning; teachers generally have an abundant knowledge of the content of the curriculum. The problem is one of communicating, integrating, and utilizing these three sources of information in educational planning for the exceptional child.

In experimental studies of children with learning problems, their diagnosis, and management, we read of teachers and psychologists who function together as a complementary pair of learning specialists. In real life situations we find teachers referring children to the school psychologist because of suspected learning and behavior disorders; we find psychologists responding by providing the teacher with an overwhelming set of terms such as dyslexia, dysgraphia, and dyscalculia to describe what the teacher has already observed; namely, that the child in question experiences great difficulty in tasks which require him to read,

write, and do arithmetic. The psychologist may also go on to explain what may have caused these deviations in the child's learning, and the extent to which his problems inhibit his satisfactory academic progress. Out of this knowledge the teacher can at least find reasons or excuses which justify why the child has not responded to her teaching approach, but she would have to read very closely "between the lines" to discover how she might modify her approach or adapt traditional materials in order to effectively teach the child. When such a process is operative, little change results for the child, and teachers become too eager to jump on the current psychological "bandwagon" (and learning disabilities may be one) to explain away the children who present a challenge to their teaching skill, while psychologists are guilty of merely elaborating on the problem which the teacher has used as her basis for referral of the child.

It is abundantly clear to all of us that teachers and psychologists must search together for new avenues of communication and patterns of interaction if we are to be successful in planning effective instructional programs for the special child.

Corey (1967) has stated that instruction is an empirical process, and as such is made more effective by taking consequences into account. In order to meaningfully consider the consequences of instruction, prior planning is essential. The model which we at the Instructional Materials Center have developed for effective educational planning has three focal points: the child, the psychologist, and the teacher. We visualize the relationship of these three people as interrelated loops in an information and feedback system which is continuous, ongoing and self perpetuating through all levels and stages of the educative process. At various points in the process the teacher interacts with the child, the teacher with the psychologist, the psychologist with the child, and again the teacher and the psychologist come together to discuss the next approach the teacher may try with the child. Effective educational planning is thus seen to be a continual recycling through various input and output channels where check points are specified and the alternatives which lead to adaptation and correction of the process are built into the system. Effective educational planning depends on three kinds of information:

1. All we know about the child.

2. All we know about the subject matter or behavior which the child is to learn.

3. And all we know about methods and materials which will help the child to learn the desired behavior or subject matter content.

Psychoeducational Evaluation

It is through the continuous application of psychoeducational evaluation that we gather and interpret information about the child for whom we are planning. The term psychoeducational" serves to define the dimensions across which we will be describing the child; we are concerned with evaluating the child's developmental status and structure as a human person as well as his educational progress and pattern as a learner.

The process of evaluation focuses on change and is to be understood as the antithesis of measurement which is concerned with stability. Both the evaluation and the measurement methods rely on the use of tests; however, the evaluation approach is one of testing for change as it occurs over time, whereas in measurement the purpose of testing is to provide a quantitative description of the individual as he exists at a particular moment. Evaluation thus provides us with some

information as to the long term picture for the individual; measurement restricts us to a "time slice."

In special education we are typically interested in the behavior of individual children, and often more concerned about the quality than the quantity of their performance. Since the educationally handicapped child is characterized by his variation in performance level across a variety of factors, our goal is to compare his level and pattern of functioning in one area with his own performance in another area rather than to rank him against the achievement of his peer group. We are therefore dependent to a large extent upon systematic observation and recording of the child's typical behavior in the multitude of diverse situations which arise within the home and school environments. The teacher is in a good position to observe the child's behavior principally because she sees more of it than does the psychologist and, in many instances, the parent. The teacher can contribute to the initial and early identification of deviant learning patterns among the children she teaches. She can also gather very specific information about the child's functioning in the school situation. For example, the teacher may observe that a child can operate productively only when he is under her direct supervision; she may note whether the child takes the opportunities provided him to actively explore his environment, and whether he is capable of using language to monitor and control his actions. In short, the teacher can identify the behaviors which the child needs to learn and also which ones are already included in his repertoire. The essential point to be recognized is that the teacher is able to observe the child over a period of time, and thus can detect abrupt or gradual shifts in his pattern of behavior. Without firsthand observational data from the teacher, the psychologist's interpretation of test results becomes merely a series of educated guesses and her recommendations only an idealized list of suggestions unrelated to the reality of the classroom situation.

The psychologist's role in psychoeducational evaluation is to assist the teacher in planning an instructional sequence for the child which will develop his abilities and help him to overcome, or compensate for, his disabilities. The standardized pscyhological test situation traditionally provides the context within which the psychologist observes and studies the child's behavior. In order to tap a broad range of functions, a variety of instruments are generally used in evaluating the child with learning disabilities. This procedure permits the psychologist to analyze discrepancies among scores and to make hypotheses regarding the causation of the child's learning problems on such an analysis. A more productive method of utilizing the information obtained from a battery of psychological tests is to group the various tests and subtests along the ability and performance dimensions most significant for school learning. Figure 1 provides an example.

The psychologist can then state what behavior the child has acquired and what specific skills he must learn. The psychologist is primarily interested in studying the child's approach to new learning tasks, his reaction in the face of difficulty, and the extent to which he has developed efficiency and flexibility in problem solving situations. Thus, the abilities listed are more important than the particular tests used to assess them. Undoubtedly several other areas of functioning might be, and often should be, considered; social and personality development, for example, are important. The psychologist should, however, guard against "information overload," to borrow a phrase from McLuhan. While the amount of information we can gather on a child is more or less infinite, not all of it falls within the scope of what is directly relevant to the teacher.

Conclusion

When psychological test data are gathered in this way and interpreted in

FIG. 1. Psychoeducational evaluation.

Ability	Subtests which provide information
1. Conceptual	WISC (Arithmetic, Similarities, Information); ITPA (Auditory-Vocal Association)
2. Visual Perception	WISC (Picture Arrangement, Picture Completion, Block Design, Object Assembly, Mazes); Frostig Test; ITPA (Visual-Motor Association)
3. Auditory Percpetion	Wepman Test of Auditory Discrimination; ITPA (Auditory Decoding)
4. Language	
a) Receptive	Peabody Picture Vocabulary Test; ITPA (Visual Decoding)
b) Expressive	WISC (Information, Similarities, Vocabulary, Comprehension); ITPA (Vocal Encoding, Auditory-Vocal Automatic)
c) Associative	WISC (Information, Similarities); ITPA (Auditory-Vocal Association)
5. Memory	
a) Immediate	WISC (Digit Span); Frostig; ITPA (Auditory-Vocal Sequential, Visual-Motor Sequencing)
b) Remote	WISC (Information, Similarities, Vocabulary)
6. Motor	WISC (Coding, Mazes); Frostig; ITPA (Motor-Encoding, Visual-Motor Sequencing)
7. Organization and Efficiency	WISC (Picture Arrangement, Mazes); ITPA (Visual-Motor Sequencing)

light of the teacher's observations and all of the other available information about the child, the psychologist is ready to write a meaningful report to the teacher which will aid the teacher in planning purposeful classroom learning experiences for the child.

Tests are useful not so much because they yield scores and measures as because they permit us to systematically study the way a child operates as a person and as a learner. They help us to judge what educational goals may reasonably be set for the child, how to plan and pace the learning experiences which will help the child reach these goals, and what methods and materials will help the child to learn most efficiently.

The psychologist should meet, then, with the teacher to discuss her findings and together they should specify a list of recommendations for the child which the teacher can then use in planning. Recommendations should not be re-

garded as final, but only tentative. Feedback and followup are essential.

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ABSTRACT

A COMPARISON OF THE LEARNING CHARACTERISTICS OF HYPERACTIVE AND HYPOACTIVE CHILDREN WITH RELATED CENTRAL NERVOUS SYSTEM DYSFUNCTIONS

by

Maxine F. Gates

This study has attempted to relate the learning characteristics of elementary school age children placed in classes for the neurologically handicapped to clusters of observed behaviors. The behaviors were defined as hyperactive and hypoactive. One group of children exhibiting extreme hyperactive behaviors and one group of children exhibiting extreme hypoactive behaviors were identified by means of special class teacher ratings on a behavior rating scale. An itme analysis of the rating scale determined the reliability coefficient for hyperactive items to be .88, while the coefficient for hypoactive behaviors was .82. Construct validity was also demonstrated.

The performance of the two selected groups was compared on tasks primarily in the visual and auditory channels of learning. The relationship between performance at several levels in the visual and auditory channels of learning and the developmental level of concept formation was determined. Instruments utilized in this study were the Bender Visual Motor Gestalt, Wepman Auditory Discrimination Test, selected subtests of the Illinois Test of Psycholinguistic Abilities, and the Vygotsky Block Test of Concept Development.

Additional variables considered were: (a) the influence of years in special class on test performance, (b) the relationship between group membership and medication, (c) the relationship between group membership and EEG status, and (d) the relationship between IQ and the developmental level of concept formation.

The major findings of the study indicated that the hyperactive group was deficient in the visual channel of learning, while the hypoactive group demonstrated strength in the visual modality. Although significant F ratios were not obtained, cell means suggested that the hypoactive group tended to be deficient in the auditory channel of learning when compared to the hyperactive group. Both groups were equally deficent in developmental level of concept formation.

Additional findings indicated that hypoactive children had significantly greater number of positive neurological findings than the hyperactive group. No differences were demonstrated in group membership and incidence of taking medication. No relationship between IQ and developmental level of concept formation was found. Years in special class did not appear to be influential on test per-

formance.

ABSTRACT

A COOPERATIVE PRIVATE AND PUBLIC SCHOOL PROGRAM FOR CHILDREN WITH LEARNING DISABILITIES

by

Marianne Frostig

Since 1962, the Los Angeles Unified School District and the Marianne Frostig Center of Educational Therapy have conducted a cooperative educational program for junior and senior high school children with learning disabilities. This program enables the adolescent to remain in the public school for part of his educational program and to maintain contact with his peer groups and to also receive the specialized remedial and special ability training provided at the Frostig Center.

The students attend the public school in the morning and take three or four nonacademic subjects. During the afternoon, from 1:00 to 4:00 p.m., they attend the Frostig Center and receive special ability training, remedial instruction in basic skill subjects, and instruction in the academic curriculum requirements for their respective grade level. At the end of the semester, the Frostig Center sends to the public school the curriculum areas covered and the grades received by the student. This is recorded along with the public school grades and counts toward graduation from the public school.

The students usually begin by taking all of their academic program at the Center. As they improve they take an increasing amount of academic work in the public school. The goal of the program is to enable the student to return to a fulltime public school program.

In addition to the above, a supplementary program has been initiated this year in which a group of adolescents who are taking a complete public school program attend the Frostig Center for supportive educational assistance from 3:30 to 5:00 p.m. Monday through Thursday.

FACTORS IN SEVERE READING DISABILITY: THE PSYCHOLOGICAL TEST CORRELATES

by

Gilbert R. Gredler

Statement of the Problem

There have been increasing interest and concern within the past several years about the child with severe reading disability. Several investigators have studied this area and come up with diverse findings. The aim of this paper is to review pertinent material on severe reading disability in children, with special attention given to findings from various psychological tests.

Particular attention will be given to the importance of perceptual factors in the development of adequate reading ability and disability. We are interested in the child who shows extreme difficulty in learning how to read for whom the usual remedial methods have generally been unsuccessful.

Before beginning to analyze the psychological test correlates a frame of reference needs to be established which will aid in the interpretation of the psychological test results.

Opposing Points of View in the Reading Field

In describing children with severe reading disability medical literature is replete with such terms as congenital work blindness, specific language disability, constitutional dyslexia, specific reading disability, dyslexia, etc. Psychological and educational literature in turn uses such terms as slow learner, emotionally distrubed, immaturity, etc.

Malmquist (1960) was forthright in putting the issue thus:

> In our opinion it's not possible to differentiate from a population of children a specific and well-defined group of poor readers, who can then be classified as suffering from 'congenital work blindness,' as medical research presumes can be done. For such a sharply delineated and clearly discernible group does not exist. On the contrary, the graduation from a very good reader to a very poor reader has proved to be relatively continuous.

On the other hand, Critchley (1966), speaking for the medical profession, said:

> ...within the last three decades or so a totally different orientation (concerning reading disability) has appeared on the scene to complicate the issue. Stemming from the obiter dictum of a certain educational psychologist, authoritative in his own realm though deplorably ignorant of the workings of the nervous system, an entirely different notion grew up with disastrous repercussions upon the affected children and also upon paediatric neurology. Like something out of early ecclesiastical history, an odd heresy appeared, that within the community there exists a variegated group of poor readers..(In addition) these paediatric psychologists alleged (that these children were) clever by emotionally disturbed youngsters who could not or would not apply themselves to the task of interpreting verbal symbols. This latter class was usually regarded as being victimized by circumstances and the teachers and others were ready to dart upon such factors as broken homes, drunken or unsympathetic fathers, shrewish or wanton mothers, intersibling jealousy, teacher-pupil hostility, and so on and so forth, as being all-important.

In a more pungent manner, Wall (Reid, 1968) stated: "The word 'dyslexia' seems to be a jargon at its worse'...It means bad reading, and nothing is added but its Greek form...."

These quotations give us some flavor as to the strong feelings present among the various individuals who work in the area of reading disability. As has been stated, severe reading disability has been attributed to the following factors at one time or another: emotional maladjustment, hereditary factors, congenital defects, minimal brain damage, developmental lag, and various environmental factors. Reviewing the work of the proponents of various theories of etiology could be an interesting sociological exercise in the conflicts of various professional groups and the biases produced by the different kinds of training programs. What is important is that all professional areas (education, psychiatry, psychology, and sociology) have contributed worthwhile ideas as to factors involved in reading disability. It is unfortunate that a number of contributors have felt that in order to gain acceptance of their ideas they must at the same time denigrate the ideas from other disciplines.

While it would also be interesting to analyze the competing ideas from a frame of reference emphasizing such factors as professional jealousy and hostility, this is not the main intent of this paper.

Definitions of Severe Reading Disability

To begin with we need an adequate definition of reading disability. Part of the difficulty in working in this area is due to conflicting ideas as to what constitutes a disability. Kirk (1966) stated that all too often reading disability is confused with minor forms of poor reading. He mentions that some children are retarded in reading because of environmental or instructional factors but nothing "abnormal" is found within the child. Kirk would classify such retardation as falling under the label corrective reading. He goes on to state that "the child with a true reading disability is one who is diagnosed as having a deficit in the development of psychological characteristics that require remediation." Kirk stated that he prefers to categorize such children as those with psychological developmental deficits instead of using the words "dyslexia," "specific reading disability," etc.

While Kirk makes an important distinction between corrective reading cases which only require correctional forms of instruction in the classroom versus remediation outside the classroom, many researchers have found this phrasing too nebulous and would add other qualifying phrases to their definition of reading disability.

Malmquist (1960) was quite precise in his definition of reading disability. He stated that children in his study were classified into three groups, as follows:

1. Poor readers were those who scored below 1 standard deviation on the standardized reading tests used in his research.
2. Medium readers fell between -1 and +1 standard deviation on the reading tests.
3. Good readers obtained scores on the reading tests which placed them beyond 1 standard deviation on those tests.

In her study of children (ages 7-0 to 10-0) with reading problems, Kass (1966) chose subjects who were retarded in reading as shown by a battery of diagnostic reading tests. Specific criteria were as follows: 2nd grade 1/2 year retarded; 3rd grade 1 1/2 years; 4th grade 2 1/2 years.

Rabinovitch defined reading retardation as a "significant discrepancy between actual reading level and expected reading level for performance mental age."

He considered that in children up to 10 years of age, one year of retardation is significant, while 2 years of retardation would be significant for those beyond 10 years of age. It is obious that some of the discrepancy in research reports on reading disability is due in part to the fact that the various reading disability groups under investigation do not all have the same parameters.

We also need to look at Hermann's (Critchley, 1964) definition of reading disability. His definition is similar to Kirk's when he wrote that it "is a defective capacity for acquiring, at the normal time, a proficiency in reading and writing corresponding to average performance." However, Hermann went on to add that the "deficiency is dependent upon constitutional factors (heredity), is often accompanied by difficulties with other symbols (numbers, musical notation, etc) and it exists in the absence of intellectual defect or of defects of the sense organs...."

Note that Hermann's definition of reading disability emphasizes the constitutional aspect of the disability. This brings us back full circle to a consideration of what etiological factors are important.

It is hoped that the writer will not be accused of a soft headed eclecticism in saying that the etiological factors are multitudinous. To concede that neurological or familial factors may be important does not lessen the importance of the part that emotional factors may play in the occurrence of severe reading disability. In addition to looking closely at the variety of factors that may be important, we also need to ask ourselves how beliefs about etiology or reading disturbance can help or hinder the subsequent diagnostic and remedial process.

Is it true, as Clements (1962) stated, that clinicians are overstating their case? For example, he said:

> In the majority of present day training centers and institutions charged with teaching our future clinicians regarding maladjusted children, most of the emphasis is given to one side of the story only - the psychogenic side. The course material is steeped in repressed hostility, oedipal conflict, repressed sexuality, and the like. These are presented as being the major causes of deviant behavior, with only casual reference to the spectrum of organic factors which are primary to all learning and behavior. It is very like a child's game of make believe and we are playing like nothing new has been learned about human behavior over the past fifty years.

If, for example, the result of such beliefs focuses only on what are considered perturbed parental-child relationships when in reality the child has a real perceptual deficit which needs to be planned for in a remedial program, then obviously we are not providing an adequate diagnostic and remedial program for the child.

What we find is that adherents to the different schools of thought concerning reading disability all emphasize the negative consequences of believing in the theories of the opposition. For example, Malmquist (1960) believes that congenital work blindness is a "fatal term" leading to the conclusion that not much improvement can be expected in the child's reading. Clements believes that attributing learning disabilities of children almost exclusively to the interrelationships between parent and child create a number of "misunderstood" children.

McCarthy (1967) said: "We can't wait 50 years for the neurologists and psychologists to tell us why. But what is more important to those of us who are teachers is to teach these kids as much as we can teach and-more important-as much as they can learn." In opposition to this point of view Reid (1968) said: "It might even be more true to say that educators have not concerned themselves sufficiently with etiology, in that they have sometimes put together for remedial purposes children who were retarded for a variety of reasons and who perhaps required very different forms of help." Reid feels that such a course of action has possibly resulted in obscuring important distinctions.

Reid also feels that if the individual who is in charge of remediation does not retain a definite interest in the possible etiological factors involved, he really becomes nothing more than a technician carrying out remedial exercises. She also mentions that the remedial worker has to deal with emotional reactions as they evidence themselves in the child and his parents; therefore, an understanding of causes is an important part in reducing anxiety.

In describing Frostig's ideas, Work and Haldane (1966) stated that Frostig advocates an approach in which the perceptual handicap is identified and singled out, and the necessary remedial work is begun all without ferreting out etiology of the handicaps. In commenting on this point of view they say:

> This violates general concepts of consideration of pure knowledge but it may be empirically worthwhile in the therapeutic approach. As long as an individual child is to be treated with a defined approach and given special treatment geared to his present symptoms, the cause, nature, and name of the conditions may be irrelevant.
>
> However, if it is found that a similar clinical picture can result from different conditions and if further treatment depends upon thos initial conditions, the semantic problem becomes a more practical one. It is equally obvious that to consider prevention a more clear etiological and developmental picture is necessary. (Underlining by writer)

Many in the special education field tend to reject all speculation as to etiology and state that more emphasis should be spent defining the areas of deficit with concurrent suggestions for remediation. Those in favor of the programing approach, however, have tended to neglect the emotional climate of the classroom, the school, and specifically the attitudes of the teacher and how these may affect the learning process.

The importance of teacher expectancy and positive attitudes concerning special programs in effect are well documented. The most recent such investigation has been Rosenthal's study (Rosenthal & Jacobson, 1968) in which he studied the attitudes of teachers toward disadvantaged children. By creating an environment whereby teachers were led to believe that certain students were of superior ability and school personnel could expect superior performance from them, it was found that the designated children did grow intellectually and were perceived by their teachers as more positive personalities. It would be interesting to do a similar study using groups of children classified as "learning disability" cases.

It is the contention of the writer that the remedial and programing emphasis has been frequently overemphasized to the exclusion of looking at the attitude matrix of school personnel charged with working with children in various remediation programs.

We now need to turn toward a definition of reading disability which attempts to relate possible "other causes" in a way so as to enhance clarity and avoid confusion in this field.

A Modern Definition of Severe Reading Disability

A definition of reading disability which makes an attempt to resolve some of the differing points of view within the field comes from Rabinovitch (1959). His classification is threefold, as he postulates existence of primary and secondary reading retardation and reading retardation associated with brain injury.

Specifically he describes primary reading retardation as a condition where learning to read is impaired but there is no definite evidence as to brain damage. Rabinovitch explains that there is a "disturbed pattern of neurologic organization."

In secondary reading retardation there is no question as to the necessary capacity to learn but this capacity is affected adversely by factors exogenous to the child's neurologic organization. Thus the child's reading retardation would be considered due to such emotional conditions as anxiety, depression, negativism, or limited school opportunity.

The third type of reading retardation is retardation which is associated with brain injury. Here is where difficulty in reading is due to brain damage reflected in definite deficits in the neurological examination.

Acceptance of this definition of reading disability has important ramifications for those engaged in pointing out actual factors involved in reading disability. The writer, in his former position as a director of psychological services and presently as a trainer of school psychologists in a university setting, has found that such a definition as Rabinovitch's helps to broaden the perspective of the school psychologist in understanding the breadth and complexity of reading disability.

Rabinovitch (1968) recently restated his classification of reading retardation, including only two main categories:

In primary reading retardation, which he now calls developmental dyslexia, there is a definitive neurologic dysfunction but no actual signs of brain damage.

In the second category, Rabinovitch states that reading retardation is secondary to "other encephalopathy" by which he means that the reading retardation is secondary, or reactive, to other problems. Thus there may be evidence of brain damage with difficulty on the part of the child in dealing with symbols. Or there may be impairment of concentration and impulse control to such an extent as to impair reading skills. Also included in this category of reading retardation is disability secondary to emotional disturbance and/or "opportunity factors." Here would be classified those children whose lack of experiental background has affected the development of reading skill, i.e., the "culturally disadvantaged" child.

While it is helpful to have an organized and coherent way of looking at reading disabilities we must at the same time raise the question of how well the children who have reading disabilities fit these diagnostic categories.

Rabinovitch conceded that "in my own work I am often obliged to diagnose secondary reading retardation with a touch of the primary syndrome." DeVault and Stewart (n.d.), in their analysis of 36 children with severe reading disability, stated that:

several children were given two primary diagnoses, and there were many who seemed to have a combination of primary and secondary factors, the latter including emotional difficulties reactive to the learning problem or one of the other factors, and the verbal-motor, language and perceptual deficits resulting from one or the other of the primary factors.

A neurologist, Whitsell (1965), while accepting Rabinovitch's categories, stated that in his cases of primary reading disability the neurologic findings "have ranged from isolated minimal perceptual defects in children with otherwise superior endowment to indications of more diffuse neurologic dysfunction, barely acceptable as 'subclinical.'"

Jampolsky (1965), in referring to Rabinovitch's statement about possible overlapping of characteristics between the primary and secondary groups, stated that there may be even more overlapping than was first suggested. He went on to say that too much emphasis has been put on an either or approach--an approach stating either the primacy of organic factors or the primacy of psychological factors. Jampolsky would prefer to discuss the child with severe reading disability from the point of view of where he falls on a continuum with varying degrees of emotional and/or organic factors being involved.

If we can state that the child with reading disability will present a complicated diagnostic picture, we then can legitimately ask about the various characteristics, symptoms, deficits, etc., that might be present.

The Role of Visual Perception in Reading and Reading Disability

When we speak of factors involved in severe reading disability, primary attention is usually given to the importance of the perceptual process, particularly visual perception. Therefore, it is necessary to adequately define this term and indicate the relationship of visual perception to adequate achievement in reading and reading disability.

De Hirsch (1957) mentioned that the young child must show adequate perceptual development or the letters, words, and phrases will remain undifferentiated and diffuse. She went on to say that spatial relationships are important for the child when reading has to cope with a pattern which is laid out in space. Another aspect of perceptual development is figure-ground relationships. To read successfully the child must be able to adequately differentiate the letters (figures) from the page (background). Gofman (1966) described the role of visual perce, tion in reading when she mentioned that a child learning to read must be able to "perceive small differences in two-dimensional visual symbols; orient himself in space, be aware of small changes in position, and have an awareness of left-right direction of symbol sequences." Also he must "have the necessary motor coordination to reproduce these symbols sequences on paper, and have the ability to integrate visual, auditory, and tactile-kinesthetic sequences."

It would appear then that we should expect disturbances of some aspect of visual perceptual development in children with severe reading disability. Jastak (1965) also gave prime importance to the role of visual perception in reading when he described the reading process. He said that learning to read is a process that involves translating a series of visual motor symbols into oral sounds. Jastak also stated that the letters that the child is required to perceive can only be processed accurately if attention is given to their space or directional value. He held that children with severe reading disability have failed to develop the proper

directional clues which are necessary in learning to read. Thus "when the development of directional differentiation is blocked, reading disability results." Jastak speculated that "children with reading disability may be normal in all respects except the acquisition of symbols based on directional clues." Translating this into test performance would mean that such children would perform more poorly on such tests as the Minnesota Percepto-Diagnostic Test which is scored as to degree of rotation of the geometric figure .

It is obvious that Jastak gave primary importance to defective visual motor development in reading disability. However, Rabinovitch and Fuller would disagree in part. The former held that visual recognition and discrimination tends to be normal but that the letter forms and the various letter combinations cannot be organized into a meaningful whole.

Fuller (1963) stated that on a test of rotation "the Minnesota Percepto-Diagnostic Test will differentiate the secondary and organic types of reading retardation from the primary because distrubance in visual-perception and orientation are related to reading impairment in the first two, but not in the last, mentioned."

In his original monograph on reading retardation published in 1956, Rabinovitch discussed some of the characteristics of primary reading disability. He said that directional (left-right) confusion is frequently found which would tie in with Jastak's ideas of the importance of this factor. However, Bender questioned the dichotomous classification of primary/secondary; she doubted that a meaningful differentiation between primary and secondary can be made. She felt that the difference between primary and secondary is merely the difference between severe reading disability and moderate reading retardation. It is interesting to note that in Rabinovitch's (1956) original study the primary reading group was defined as absence of history or brain damage, lack of evidence in the routine neurological, but the evidence of abnormalities in an "expanded" neurological. Rabinovitch said that the presence of these neurological findings is what distinguishes the primary from the secondary group. He believed that the primary cases reflect a "developmental discrepancy rather than an acquired brain injury."

Fuller defined primary reading retardation as the impairment of the capacity to learn to read without specific evidence of brain damage from the history or neurological.

Kolson and Kaluger (1966) attempted to classify all reading disability cases under the rubrics of a twofold classification scheme: primary and secondary. They defined primary reading disability as a "congenital reading disability having a specific syndrome. It is characterized by the presence to some degree of dyslexia, dysgraphia, dyscalculia, right-left disorientation, and agnosia." However, using the word dyslexia in this context confuses the issue, for others speak of severe reading disability as developmental dyslexia.

It would appear that the diagnostic category of primary reading disability is somewhat nebulous in regards to its specific characteristics. Fuller deemphasized the role of perceptual impairment in primary type children and instead stresses that the difficulty is perceptual-conceptual. Others such as DeHirsch, Silver, and Hagin stress the perceptual aspect of reading disability.

It should be obvious from the foregoing discussion that what appear as characteristics of severe reading disability will depend in part on how the population to be studies is chosen and how [illegible] are measured. In connection with the diagnostic entity of "primary reading disability" there needs to be further standardization of what constitutes the specific criteria. Fuller's group of 42 children re-

ported on in 1963 constituted the main sample that has been reported on in the literature. While this specific group of children showed little or no perceptual disability as measured by the lack of rotation of the MPD figures it might be more feasible to consider a whole gamut of behavioral variables and attempt to specifically ascertain the pattern of disability that is involved.

In order to provide further clarification of what characteristics accompany severe reading disability or dyslexia, we need to consider what important processes are involved, attempt to build instruments to assess such processes, and then see what shows up in groups of children with severe reading disability and those who are "normal."

In measuring visual perceptual development we first need to ask what are the meaningful components of successful performance in this area. Factors affecting the performance of the child on a perceptual test can be affected by (a) motor proficiency, (b) matching or discriminative ability, or (c) integrative ability.

Some psychologists object to the use of the Bender as an instrument of perceptual development because they feel there is such a mixture of processes involved that no meaningful statement can be made about the child's performance.

Beery (1967) aptly described the various aspects of visual motor functioning. In his research he mentioned how he measured the various components. Specifically in one study children were asked to (a) match reproductions with the original geometric stimulus (a visual perception task), (b) trace geometric figures (a motoric task), and (c) copy geometric figures (a task involving integration of visual motor stimuli).

In his study with children between the ages of 5 to 15 the following results were obtained:

1. Tasks measuring visual motor integration correlated highly with visual perception tasks and with motor proficiency tasks (.72-.76).

2. Tasks measuring visual perception and motor competence correlated in the range of .60.

3. A rank order of difficulty of performance on the various tasks was as follows: (a) an individual who did well on one task tended to do well on the other two tasks; and (b) the overall difficulty of the three tasks was different with motor proficiency tasks being easiest, visual perception tasks coming next and visual motor integration tasks being the most difficult.

Weiner (1968) in his discussion of the Chicago Test of Visual Discrimination made similar points, stating that the Chicago test emphasizes the ability to discriminate visual forms and assesses the memory factor while a test like the Bender or Beery-Butenika reflects performance of a more complicated nature--the integration of both the visual perceptual factor and the motor factor. While Weiner stated that many other ability factors must be present for the child to successfully learn to read, he also stated that adequate visual perception functioning is a necessary base for learning.

Benton (1962) has given us an able summary of recent work in the relationship of visual perception development and reading. He felt that there is a relationship between visual form perception and reading disability in young children but that a deficiency in visual form perception is not an important part of severe reading disability or developmental dyslexia. Benton went on to say that to him

the research is contradictory but it does appear that "inferior form perception, visuomotor skill and directional sense is associated with reading retardation in younger school children." He made the important statement that "a certain level of visual discriminative capacity is obviously a necessary precondition for learning to read, and there is a variation in the rate of development of these visuoperceptive skills in the early years of life."

Benton also stated that some older dyslexics do not perform well on "higher level right-left orientation tasks" and suggested that the older dyslexic child may show disturbed form perception and directional sense when the tasks require "verbal mediation."

Characteristics of Severe Reading Disability

It is evident from what has been said so far that a number of variables are involved in developmental dyslexia or severe reading disability. Sabatino (1968) emphasized looking at the child's information processing behaviors. His research subjects were boys ranging from 6-4 to 12-12 referred to a clinic for learning disabilities. The subjects were also screened to exclude any individuals with hearing loss, chronic illness, family pathology, and emotional disturbance. Under these conditions he found four categories of importance:

1. A component reflecting the importance of discrimination, recognition, memory and recognition functions of auditory perception and of auditory visual integration in academic achievement.

2. A component reflecting the ability to associate and mediate language concepts (aspects of intelligence).

3. A visual motor perceptual factor.

4. A component dealing with the ability to sequence "central language association."

In other words the subjects showed deficits in verbal associations, understanding word meanings, and concepts, and expressive speech.

It should be noted that all 11 WISC subtests contributed to the four principal components obtained. This certainly has implications for the school psychologist in writing his report stating specific psychological and educational deficits observed in cases of learning disability.

Klapper (1966) has aptly described some of the important psychoeducational aspects of reading disabilities. She considered that the main characteristics of the child with severe reading disability center around the inadequate processing of sensory information. Mention is made of impaired functioning in three areas: (a) the inadequate processing of sensory stimuli in one channel, (b) impaired integration of information coming in from two or more sensory channels, and (c) deficient cognitive functioning which in turn would hamper the child in the use of "spatial, directional, or temporal information." She put great emphasis on the (a) coordination of visual and kinesthetic cues, (b) auditory-kinesthetic integration, (c) difficulty in the orientation and position of verbal symbols, and (d) existence of right-left disorientation.

Klapper also gave us some common sense admonitions concerning remediation when she stated that there is no scientific basis for giving preference on one remedial approach over another in working with the dyslexic child. She emphasized

that all approaches have several features in common: an individual remedial program, separate from the regular classroom, and a trained teacher with confidence, motivation, and commitment.

Klapper agreed with Benton when he said that dyslexia is not primarily a disorder of visual perception of shapes (being able to recognize and match such correctly). Instead the important aspect is that the perceptual process is disturbed when "the dyslexic is confronted with spatially or temporally distributed visual stimuli and arrangement in a sequence is required." Klapper also emphasized the impaired coordination and integration of "multi-modal sensory information." Klapper would say that the forms on the Bender are perceived correctly but the dyslexic cannot copy them accurately. Goins, however, would claim that there was a direct relationship between poor visual form perception (matching shapes), poor directional orientation, and reading disability.

Lovell (1963), in his research comparing backward readers with normal readers matched as to CA (mean 9.8 years), IQ (mean 103), sex, and social class, found that his backward readers performed more poorly on a test of rotation. While his subjects tended to reproduce the abstract designs correctly, they copied them in a "misorientated" position (i.e., showed increased rotation). Lovell's hypothesis was that the increased rotation effect was due to "disturbance of visual input caused by brain dysfunction." Whether or not we wish to accept such performance as proof of brain dysfunction or brain injury, Lovell felt that there is some cortical or subcortical dysfunction present in these backward readers which disturbs the visual input and in turn results in limited progress in reading.

Klapper also put in a plug in defense of being concerned with etiology and causal factors in general when: "Increased knowledge and understanding of the distrubed processes underlying reading disability should further the development of effective training programs and techniques." That this will be a difficult task can be seen by looking at the work of Lachmann (1960) in his studies of various groups of malfunctioning children.

Lachmann investigated perceptual motor development in children ranging in age from 8-9 to 11-11 and who were members of one of the following subgroups: (a) retarded in reading but or normal intelligence, (b) emotionally disturbed but of normal intelligence and normal reading ability, and (c) normal group, with no record of diagnosis of, or treatment because of, emotional difficulties. Lachmann used the Bender as a measure of perceptual motor functioning. He used his own scoring system which antedated the Koppitz method of scoring; therefore, his results are not completely comparable to later studies involving the use of the Bender.

Lachmann scored the Benders for the following types of distortions: angulation, rotation, primitivation, separation, and slant. He found that the above mentioned distortions distinguished quite adequately the children retarded in reading from the normal subjects. A difference was also noted when the emotionally disturbed normal readers were compared with the readint disability children. Once again, the children retarded in reading performed more poorly. However, the difference fell just below the significance level of .05 ($P = .07$).

It would be well to quote Lackmann on his conclusions. He stated:

> [This] suggests that though reading retardation may well reflect immaturity in perceptual-motor development, (the) developmental hypothesis cannot be used to account in full for the retardation. Emotionally

disturbed, normal readers offered these distortions too frequently to permit their exclusive association to reading retardation.

The age of the subjects used in this study should also be noted. Lachmann found definite differences in all subgroups, with more maturity of function in the older children of each subgroup. This raises the question of how much greater the difference might have been with the inclusion of younger children (i.e., 6 to 8 years). It is also important to note Bond and Tinker's (1967) findings that the correlation between mental age and reading achievement becomes higher as pupils progress through grades 1 to 4. The meaning of this kind of relationship is that obviously there are several other factors involved in learning to read successfully. And it would appear that one of these other factors is adequate perceptual motor or visual perceptual performance.

Another investigator who has contributed valuable information concerning specific psychological variables linked with reading disabilities is Rubin (1964), who questioned the overemphasis on intrapsychic pathology as a causal factor in reading disability. He felt that what should also be looked at is the adequacy of the child's development in the cognitive, perceptual, and motor areas as he attempts to cope with his school environment.

In one study Rubin (1964) found a lack of correspondence between traditional diagnostic categories ("anxious," "immature," "brain damaged") and dysfunction scores of children in these groups on various perceptual and neurological measures (Bender, Frostig, EEG). Instead what stood out was the fact that many children in each category showed cognitive and perceptual deficits. Labeling the children just as "brain damaged" or "emotionally disturbed" contributed little to understanding their learning difficulties.

Rubin went on to suggest that the existence of such perceptual and neurological dysfunctions increases the child's vulnerability to stress. Since the child could not perform successfully on many school tasks because of such deficit levels, Rubin postulated that secondary emotional disturbances would also result.

Rubin also compared the EEG findings of these three groups of children (ancious, immature, and brain damaged). While 32 percent of the brain damaged children showed abnormal EEG's, 42 percent of the immature also showed such findings and 33 percent of the anxiety group.

In a later work, Rubin (1968) studies the performance of emotionally disturbed children on a battery of 35 tests which measured 9 cognitive motor areas (visual, auditory, tactile, and kinesthetic perception; verbal and nonverbal integration; orientation in time, space, and size; fine motor control; gross motor coordination). He found two distinct subgroups within the total group of maladjusted children. One group called the high dysfunction subgroup showed definite deficits in the cognitive perceptual motor area. Rubin categorized this group as composed of children whose emotional maladjustment is secondary to the problems they have in meeting or coping with the demands of the school environment. The other group of maladjusted children had low dysfunction scores. Rubin stated that this group does not have deficits in perceptual motor integration and orientation areas. He considered that these children's maladjustment is primary to distrubed interpersonal relationships.

Rubin also compared the high and low dysfunction groups of these emotionally disturbed children as to achievement. He found a significant difference between the two groups with the high dysfunction group all below expectancy in

achievement.

The implications of this research are several. First, the use of traditional diagnostic categories in describing children who have reading and/or learning disabilities lacks a degree of precision that is necessary in understanding how the child is performing in his cchool environment. Specifically categorizing children as "brain damaged" does little to aid us in delineating the difficulties a child may have in coping with various school tasks.

Second, this research also suggests that academic retardation is more severe in those emotionally disturbed children who have greater cognitive perceptual motor deficits. Therefore it would appear imperative that we attempt to add to our examination of the child with reading disability diagnostic tests that will give us a meaningful picture of the child's specific strengths and deficits in these areas.

In attempting to tease out other important attributes that contribute to reading disability we should look at a study by Kagan. Kagan (1965) investigated the factor colled reflection-impulsivity in children from grades 1 and 2. His hypothesis was that children who were impulsive (defined by fast response time and high error score on design matching tests) would make more recognition errors in reading words than children with longer "decision" times and low error scores (defined as "reflective" children).

Kagan discussed the implications of his findings for school personnel, noting that in one study an R of .70 was obtained between first grade children's Benders and fast response times on a design matching test. He suggests that poor Benders on children with reading problems may be due to the fact that they are impulsive children, not necessarily because they are "brain damaged."

It is obvious that this finding has definite implications for those studying perceptual development in children with severe reading disability. It suggests that we must investigate further conditions of administration of the Bender to control for the impulsivity of the child. Also it suggests that we need to look further at the emotional adjustment of the "impulsive" versus "reflective" children. Can we link the impulsive factor to a more general adjustment pattern of immaturity, dependence, and anxiety? Are we teasing out a specific personality trait which not only has general implications for the administration of various tests but also for remediation efforts in the classroom? Will we find a linkage between impulsivity of response and neurological status of the child?

Boder (1968), a pediatrician, suggested another kind of analysis which is worthy of note. She attempted to classify dyslexic children on the basis of their reading-spelling patterns. Boder suggested that there may be three different subgroups of dyslexics.

Group I children show a deficit in symbol-sound integration and difficulty in developing phonetic skills. They can be called "auditory dyslexics." These children have no word attack skills. Group II children show a deficit in establishing visual gestalts of letters. They might be called "visual dyslexics" or "letter blind." They show little visual memory for words. Group III children show the deficits of both Groups I and II. This is the "hard core" dyslexic child. He cannot read by sight or by ear. He also shows severe visuospatial difficulties.

In her survey Boder reported the following percentages for the three groups based on the following initial criteria: all children of normal intelligence; all in third grade or beyond; 2 years or more retarded on a test of oral work recognition

(WRA) and the clinic's informal word recognition inventory. In the sample of 61, 57 of the children were boys and 4 were girls. She found that 61 percent fell into Group I; 15 percent into Group II, and 16 percent into Group III; 8 percent could not be given a specific diagnosis.

The implications of Boder's study are several. First we see that percentage-wise the largest number of dyslexic children fell into the group that had auditory not visual perceptual deficiencies. Given the accuracy of her sampling tecnhiques and the validity of her test measures this of course has obvious implications for the school psychologist in administration of the diagnostic examination and in planning remediation. More attention will need to be given to adequately appraising the auditory perceptual development of retarded readers. It should be noted, however, that one-third of her group also had marked visual perceptual problems.

Boder also made an important point when she said that all too often dyslexic children are studies as if they were a homogeneous group when in fact they are definitely a heterogeneous group.

Boder feels that her grouping pattern helps lay a firm basis for providing an effective remediation program. Note that her suggestion is similar to those who are proponents of the use of the ITPA to work out a remediation program.

The whole field of remediation suffers as does much of the field of general psychological and educational research from a lack of replication studies. A worthwhile project would be for others to classify groups of children with severe reading disability along the lines that Boder suggests. Will we find the same three patterns? Additionally, it would be most interesting to see how these groups of children classified as to their patterns of reading and spelling would perform on the various subtests of the ITPA. Will we find distinctly different profiles or will all three gouprs have some similar deficiencies or deficits? It would also be important to relate Boder's three groups of dyslexic children to the patterns and deficits that might be found on the neurologic examination.

It is also worthwhile to note Boder's comments on the etiology of what she calls developmental dyslexia. Her feeling is that there is always a neurologic basis underlying dyslexia. She also says that it is most often due to a familial genetic trait and less frequently to brain damage. She also notes that "mild" dyslexia may be reflected in slower psychoneurological maturation or what she also calls maturational lag.

Continued progress in ferreting out etiological factors involved in severe reading disability rests on several bases: (a) that of continued high quality research efforts, (b) continued development of valid test instruments to measure functions thought important, and (c) an adequate analysis of the issues and questions involved in this area of endeavor.

A study which asks some of the important questions as to reading disability and raises important questions as to etiological factors involved is apparent in a recent investigation undertaken by Walker.

Walker (1965) also made the important point that children with severe learning disabilities are not a homogeneous group but show a variety of deficits. She listed the following in her deficit grouping: difficulties in comprehension; difficulties in usage of language; difficulties in memory, in discrimination, and in gestalt recognition in the visual, auditory, and kinesthetic perceptual areas; difficulties in coding; difficulties in visuospatial relationships; and difficulties in spatial orientation.

Walker set out to look at a wide range of such functions in a cross sectional group of school children in the age range of 6-11 to 9-4. She then went on to compare the results of her normative data with the results from comparable aged children who showed severe reading retardation.

Various group tests were given which measured the above named functions. Walker also administered tests which she felt were reflective of the neurological status of the child (i.e., tests of motor ability skills as measured by the Oseretsky, and tests of associated movements, finger agnosia, and choreiform movements).

Results of this pilot study are given below:

1. Difficulties in the perceptual, coding, visuomotor, and spatial areas were scattered thru out the whole cross sectional group of 33 children.

2. Sixteen of the 33 children formed a "neurological group" as defined above; also, there was no consistent association of deficits in the perceptual, visuospatial, and coding areas with reading disability; and there was no consistent relationship of the above named deficit areas with the "neurological" test scores.

3. However, children who "failed" all the neurological tests showed marked deficits on the tests of perceptual, visuospatial, and coding functions.

4. The greater the "neurological" factor as defined in this study, the greater the degree of impairment in the perceptual, fisuospatial, and coding areas. All children with a severe neurological factor as defined by Walker's tests
5 had in addition severe reading and spelling difficulties.

5. No child with any degree of "neurological loading" was clear of deficits in the perceptual, visuospatial, and coding areas measured by Walker's tests.

Walker said her findings "may point to some physiological-neurological dimension highly relevant to reading achievement but not directly related to general ability." No consistent relationship appeared between any one of the neurological functions as defined by Walker and reading disability. Among the children who were in the ""neurological" group but who had no reading or spelling difficulties, no particular pattern of strengths or deficits was ascertained. Obviously such a group needs further study to attempt to ferret out what other factors may have been at work which resulted in adequate reading performance. Therefore, such factors as competent teaching, emotional stability, etc., would have to be investigated. We would also want to investigate the compensatory mechanisms which might be at work with these children.

Summary

The object of this paper has been to provide a brief overview of factors involved in severe reading disability, to assess important developments in the area, and to offer a critical analysis of progress made. Particular emphasis has been given to the importance of visual perception in reading retardation. Possible etiological factors involved in reading retardation have been discussed. Finally, a number of characteristics associated with severe reading disability have been identified and described. While there are sharply differing opinions about the various factors involved in reading retardation, definite progress has been made in identifying specific characteristics associated with severe reading disability.

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ABSTRACT

INGREDIENTS (IMMEDIATE MATERIALS SELECTION)

by

Carlene Van Etten and Gary W. Adamson

Though there are many devices for evaluation and a large array of instructional materials at our disposal, we, as diagnosticians and remediation personnel, always come back to the same question: What is the link between diagnosis and remediation of specific learning problems?

At the Educational Modulation Center (EMC) we feel part of the answer can be found through the development of a prescriptive materials laboratory. The prescriptive materials laboratory is based on the hypothesis that educational materials can be adequately broken down to be used effectively with specifically defined learning problems.

A large collection of instructional materials provides the needed tools for diagnosis-remediation personnel. Such a collection, however, does not insure efficient and prescriptive use of the material. Prescriptive instruction is possible only when the materials for use have been thoroughly analyzed.

Analysis is accomplished by careful examination of all components of the material. Such a process is comparable to the chemist's analysis of a chemical compound. The materials analyst, like the chemist, is interested in exactly what ingredients are present within the material, the amount of the various ingredients, and their interaction with one another. If, for example, it is a phonetic material, just exactly what areas of phonics does it cover? How does the author present the material?

The wealth of material that may be gathered through analysis of instructional material is of little use without an efficient method of retrieval. Searching stored documents to recall information is a tedious and time consuming operation.

At the EMC a retrieval system is in use which allows highly specific selection of materials through the manipulation of keyword cards. This type of system is searched by superimposing appropriate cards over one another on a light box. Each place a pinhole of light shows through indicates a number on the grid. The numbers on the grid refer to a file containing Descriptive Analysis Sheets in a numerical sequence.

What can material analysis do to aid in the remediation of specific disabilities? Perhaps the biggest thing it can do will be to supply diagnosis-remediation

personnel with fingertip information that previously has had to be ferreted out by the time consuming process of going trhough volumes of material until the right item was found.

The demands of time placed on the classroom teacher and other professionals make a thorough analysis of all instructional materials by each individual an impossible task. It is, however, such an analysis that is prerequisite to effective prescriptive instruction.

INITIATING STATEWIDE PROGRAMS FOR THE EDUCATIONALLY HANDICAPPED

by

Anne Welch Carroll

Truly the time for talking, dreaming, and philosophizing on programs for the educationally handicapped is gone and the time for evaluating our efforts is here.

Dr. Ellis Graham, Director of Special Education for theColorado Department of Education proposed a bill forhelping the emotionally handicapped in 1962 which was defeated. Between 1963 and 1965 state legislation for the emotionally handicapped was reviewed and it was decided that the term "educationally handicapped" adopted by California in 1963 would provide a flexible term under the state law of Colorado.

In April 1965 the state legislatrue included the educationally handicapped under House Bill 1010 of the Handicapped Children's Educational Act.

By law educationally handicapped means those persons between the ages of 5 and 21 who are emotionally or perceptually handicapped, or both, and who require special programs. Classroom, itinerant or resource rooms, and homebound programs were made possible under this law. The variety of provisions of this law allowed for pupil placement, resource rooms, special class, and home-hospital teacher, has assisted districts greatly in developing programs based upon individual pupil needs. Programs are currently being provided for kindergarten, elementary, junior, and senior high school pupils. In the four years that the program has been in operation, most of the pupils who were first placed in them have shown noticeable improvement and many have returned to the regular classrooms and are functioning well. In many cases, they have shown a measurable increase in academic achievement.

The program for educationally handicapped children has been one of the fastest growing in the state. Since its inception four years ago, it has grown to include 4,000 children and 179 teachers in 38 districts.

It is our belief that in order to adequately plan a program for the child with a learning disability the local school must utilize essential health, social, and welfare services and work closely with private as well as public agencies. No one professional group has the answer for all educationally handicapped children; rather we are still in the exploring stage and must be careful to not jump to find the answer, but rather remember the old notion of differentiating experiences to satisfy individual needs.

The determination of existence of an educational hardicap is made with the consent of the parent or guardian of the child by a committee of professionally qualified personnel appointed by the board of education of the school district. The composition of this committee is prescribed by the state board and may be composed of, but not limited to, the following: a psychologist, a social worker, a physician, a school administrator, and a teacher of the educationally handicapped.

Provisions of the Handicapped Children's Educational Act include 80 percent of the compensation of approved personnel; 50 percent of the cost of any approved special transportation provided for handicapped children, after other funds provided by the state are deducted; and the full amount of the cost of maintenance of a child in a licensed foster home, not to exceed $800 per school year; and in the event appropriations are insufficient to cover reimbursements provided for in the above, all approved reimbursements, except those for maintenance in a foster home, which are always fully reimbursed, are prorated on the basis of total claims submitted in proportion to funds available for reimbursement.

Objectives

The educationally handicapped programs in our state attempt to determine and deal with the child's specific learning and behavioral disability within an educational setting. Biology is of importance only as it contributes to better understanding of the educational problem. Part of the basic intent of this program is to avoid pigeonholing of children by categorical definition and to focus on his specific, individual, educational disability.

Basically, the curriculum for the educationallyhandicapped, to the maximum extent possible, should be the same as that which normally is found in regular school programs. However, this program requires a highly individualized approach involving specialized techniques, equipment, and environment to effectively cope with the complex learning characteristics and problems of the educationally handicapped pupil. The nature of the remedial instruction often goes far beyond what this word has previously meant in the regular school program. A wide range of daily preparation must be made for each pupil in the program as well as coordination of preparation with those of the regular teacher with whom an educationally handicapped pupil is integrated.

For many of these pupils, changes in behavior are necessary to facilitate effective learning. Reduction in anxiety, overcoming fear of failure, controlling of impulse behavior and learning self control are some important factors facilitating learning. The teacher also must be able to give care to or handle behavior crises such as aggressiveness, emotional reactions, or seizures within the structure of the classroom. The majority of children with learning disabilities will require edditional assistance in such areas as visual and auditory perception, memory span, physical coordination, language development, and behavioral modification.

An important objective of the program is the integration of the child's program with the regular school program as much as possible. The ultimate goal is to return the pupil to fulltime, regular school attendance.

Guidelines

Guidelines for school districts wishing to submit plans for implementing a program for the educationally handicapped were developed by the Department of Education in consultation with local experts.

Staffing. The basic purposes of school staffing program are two fold:

1. The identification of children who may need educational programs which are not provided in the regular classroom.

2. The analysis of the student's learning difficulties by competent professionals with concurrent suggestions for programs and procedures to facilitate learning.

Schools have varying degress of success depending on the availability of a few key specialists, but good staffing procedures provide built-in cross checks which tend to minimize the absence of personnel.

Procedures for staffing at the building level in medium to large school systems include the building committee which is composed of the student's teacher or teachers, principal, counselor, and remedial teacher. A detailed student history, with emphasis on currency is usually available prior to staffing sessions. At an appointed time and place each case is discussed by the building committee. The building committee decides on the basis of the available information whether:

1. The student should be referred to the school system committee for additional screening.

2. The student will be provided a revised program within the school under careful observation.

Parents are contacted when a change in the student's program is anticipated or when additional information is needed. The school committee is composed of the program director, school psychologist, psychiatrist, teacher of the educationally handicapped, social worker, and other professionals as needed for specific cases. The screening committee usually meets once per month to consider cases which have been referred by buildings and to review program changes for previous cases. Decisions may be delayed on some students pending further tests and observation. A plan is developed which outlines the student's activities, teacher responsibilities, and parent participation. Alternatives are listed. Continuous evaluation of the student's progress is included. A periodic review of all cases is made by the director. The recommendations include possible program changes. The evaluation committee is kept informed of their staffing successes and failures.

Procedures for staffing at the building level is a small school system use the same procedures as in the large school systems.

Teacher Evaluation

Colorado was not alone in making a decision whether to wait for fully prepared personnel or to begin to help children. Recognizing a need for service the Colorado Department of Education, Division of Special Services, decided to issue a Letter of Approval to teachers desiring to work with the educationally handicapped. Teachers selecting this route were asked to take nine quarter hours each year in a program leading to endorsement for teaching in this area. Such endorsement includes a masters degree in the area of the educationally handicapped with special attention given to the practicum experiences which should be fitted to the individual needs of the prospective teacher.

Endorsement for teachers of the eduationally handicapped was approved in November 1965. At this time it was concluded that Colorado State College, the University of Denver, and the University of Colorado would develop their own programs in the area of the educationally handicapped and that no further meetings

would be held on endorsement in this area until after September 1966.

The standard level of training for this objective was the completion of the masters degree. The teacher of the educationally handicapped must have a teacher's certificate in either elementary or secondary education prior to endorsement in special education.

It was agreed that the personal qualifications of the prospective teacher of the educationally handicapped were of utmost importance in this area and careful consideration should be given to the selection of such individuals.

It was suggested that special attention be given to the practicum experience and fitted to the individual needs of the prospective teacher. The practicum was to be selected by the individual training institutions to include state approved public school programs, residential treatment centers, and day care facilities. A list of eligible practicum situations which might be used was given to the training institutions by the Division of Special Education Services.

In September 1966, the aforementioned training institutions submitted their course plans to the State Department of Education for approval. The following general areas were approved:

Area of human development--Psychological, physiological, and socialogical aspects of human development.

Area of diagnosis and remediation--Current principles, procedures, and techniques used in evaluating gross and fine motor development, receptive and expressive language including reading and writing. Procedures used in educational remediation and behavioral modification. Various types of educational handicaps, their classifications, possible causes, and manifestations. Organization and administration of programs designed for children with educational handicaps and techniques for parental counseling.

Related areas--Theories of learning and behavior in their application to learning and behavioral disorders. Services available from related fields for those with educational handicaps. Social interaction as related to the scientific and psychological aspects of human communication. Effective use of information obtained from related disciplines about the sensory, physical emotional, social, and intellectual status of a child with an educational handicap.

Inservice Education

An attempt to recognize the on the job needs of teachers was made through both formal and informal inservice education. The monthly meetings of an informal group called "Educators of the Educationally Handicapped" were held in the Denver Metropolitan area and taped for four regional sections of the state. These meetings proved quite successful and attendance, although voluntary, was excellent.

A more formal inservice program was given through district and state conferences as well as summer traineeships under PL 85-926, as amended.

The basic philosophy in teacher education in Colorado might be summarized by Eli Bower's comment when he stated, "We need instructors senior grade, not psychiatrists junior grade."

A Look to the Future

In looking to the future we find we are now in the late sixties and there is reason for optimism. At last we have come to grips with a phenomenon; na mely, educational handicaps, and have begun to deal with it on its own terms. We in Colorado are beginning to understand the problems and to define them in ways that promise practical dividends as they are solved.

Our trend I have noticed in some of the preservice programs has been a move away from "the" approach, or as it might be "the apostolic approach" and toward the "child centered" or eclectic view. It would appear that for years we have been trying to find "the" approach and have found ourselves in a stalemate where we have been limited to concerns about hardward and room structure rather than the more difficult task of attempting to program according to individual needs. We might observe this trend on three levels of sophistication: (a) the apostle approach, (b) the trial and error (most of us seem to be at this level) and finally, (c) the appropriate individual program based upon research fingings.

Most educators will now agree that there is no single cause or cure for learning disabilities. Rather, the educational program must be planned on an individual basis through a team effort. This conference planning approach is also an important part of preservice education.

We are developing techniques of observation and analysis that uncover more basic variables than our earlier naive concepts could reveal. We are taking our research to the classroom and the school setting without losing the precision that our practical solutions require. As our knowledge of teaching and learning behavior accumulates, hopefully the day will come when no child will fail to learn in keeping with his capacity.

A prime need is still to bring closer together the teacher education programs of schools and colleges. The same principle applies here as in preservice education. Teaching is an act, not a body of knowledge, and the teaching of teaching should be brought into the closest possible contact with the teaching act itself. Colleges in our own state are beginning to find ways to offer extension courses where students can work on field problems as part of the course requirement. Universities are helping school districts plan and execute workshops centering on local needs, and provide credit toward advanced degrees for participation in them.

It would appear that there are at least two major changes needed. The first is simply to provice inservice education in adequate amounts. The second is to provide it in a form that will really work.

Research on the problems of teaching and learning is advancing rapidly. It is time that we face realistically the question of how the findings of such research can be fed into programs of teacher education and into the channels of inservice training. There is no ready answer to this question. But a suggestion is made for consideration. For one thing, state and regional centers for inservice training of teachers might be established. These centers for inservice training of teachers might be established. These centers would serve to bring teachers into contact with new development--new techniques of diagnosis, new modes of teaching, new materials of instruction, and new evaluation techniques--all at a practical level. These training centers should be staffed with the most competent practitioners as well as talk about them and who can also train others.

The training of a practitioner is the job of the competent practitioner. But he must not be the kind of person Disraeli referred to when he said "a practical

man is the man who repeats the errors of his forefathers."

LEARNING DISABILITIES: WHERE HAVE WE BEEN ? WHERE ARE WE GOING ?

by

Jeanne McRae McCarthy

Seldom has a concept burst upon the educational scene with such cataclysmic force as the concept of special learning disabilities. Although the early impetus of the published work of Strauss and Lehtinen with the brain injured dated from the late 1940's and early 1950's, and the work of Orton and the dyslexia group dated from the 1920's and 1930's, the educational scene remained quite unruffled as late as the early 1960's. With the possible exception of some isolated research and practice in childhood aphasia and related language disturbances in such centers as Syracuse University, Northwestern, Purdue, the University of Illinois, and Bellevue Hospital, activity in the area which we now call learning disabilities was largely subliminal or limited to abortive excursions into new methods of remedial reading or new approaches to psychiatric or child guidance practice with children whose nonlearning was seen as a hostile response to parental pressure or rejection.

State legislatures had not yet been bombarded by parental pressure groups to enact enabling legislation. The USOE was blissfully unaware of what was about to erupt. Universities, with rare but notable exceptions, had no courses on the books to train personnel either to diagnose a learning disability or to teach the child who had one. Nor were there any plans afoot to initiate such training programs. Even The Council for Exceptional Children, the professional organization devoted to the education of children with special needs, at their annual convention in 1960 had not one program or paper which addressed itself to the topic under any of the various aliases which have been used to describe the child who cannot learn.

It is probably safe to say that in 1960 there were no public school classes for these children except for remedial reading programs. In Illinois in 1959 and 1960, we were able to bootleg service to a limited number of children by christening them "multiply handicapped"--the most common combination of handicaps being educational retardation, emotional disturbance, and brain damage. With the children thus labeled and documented, the public schools could legally initiate an educational program to teach them.

There were few parent groups organized to serve these children in 1960. I believe the New York Association for Brain Injured Children,the California Association for Neurogically Impaired Children, and the Fund for Perceptually Handicapped Children were the only ones in existence.

In a very few years since 1960, when all was relatively quiet on all fronts, until now, a great deal of progress has been made in all areas. Both federal and state legislation has been enacted to provide funds to train professional personnel as well as to provide the structure within which public school districts may initiate services and programs. At least 13 states now have within their education code a term which relates to LD. Parent groups have been organized at the national level, at the state level, and at the local level. There are now over 200 local

and state affiliates of the Association for Children with LD. Many universities now have a sequence of courses leading to a masters degree or a doctorate in learning disabilities. There are many summer workshops or institutes in which a classroom teacher may enroll in order to upgrade her skills in meeting the needs of children with learning disabilities. Programs to train speech correctionists are collaborating with other disciplines to provide services for these children. Guidance counselors, particularly at the elementary level, are looking at learning, or nonlearning, as an essential part of their training and practice. Psychological diagnosis, as well as the training of clinical or school psychologists, has taken a decided turn away from an emphasis on the dynamics of psychosexual development to an emphasis on learning as a modifiable behavior, and on perception and cognition rather than concentrating on emotional responses to environmental pressures. The total involvement of the field of medicine, whether in a positive or negative way, is everywhere apparent, whether it be in the obvious fields of pediatrics, neurology, and psychiatry, or in the less obvious fields of endocrinology, obstetrics, ophthalmology, otology, or genetics.

What meaning does all of this activity have to you as you attempt to integrate these new concepts into your established body of knowledge, into the organizational structure of your school system--whether you direct a program in New York, Florida, Wisconsin, Utah, or California? In simplest terms, it means that your job will be infinitely easier in this year of 1969 than it would have been at any other time. This is not to suggest, however, that your job will be easy. However, you do have some models--some other programs which have been started in public schools--from which you can learn a great deal. You do have a body of research theory and practice from which you can build a source program for children with learning disabilities. You also have a series of mistakes and blind alleys to assist you in plotting an educationally sound program.

In looking closely at where we have been and where we are going it seems safe to say that we seem to have come full circle and to have arrived again at what Binet in 1909 described as "mental orthopedics"--or the concept of the educability of intelligence. Binet, who predicted that era of mental measurement which spawned the motion that intelligence was hereditary, constant, and essentially unmodifiable, was committed to the belief that each specific function of intellect could be improved with training, and that "the same was true of the ensemble as of the elements"--that intelligence itself could be improved and increased with specific training. The same attitude was apparent in the early work of Samuel Orton and Marian Monroe. However, with the influence of the Freudian school of psychology, educators became involved in several decades of viewing learning problems as psychogenic manifestations of inner conflict in the child or as due to "poor motivation." Thus, the "child who cannot learn" was seen as the "child who would not learn," because nonlearning served a conscious or unconscious role in his struggle with forces which impede ego development. During this era of an essentially psychodynamic conception of learning problems, educators found themselves encouraging parents to involve the child in extensive periods of psychotherapy in an effort to resolve the inner conflicts which were causing or contributing to the inability to learn. Child development specialists emphasize the need of the child for success experiences, praise, and a relaxed, pleasant approach to school learning tasks. After several decades of often fruitless efforts at manipulating the child's attitude toward learning, it became apparent to many psychiatrists, psychologists, and social workers, that tender loving care, or a deeper understanding of his own motivation, could at best produce a child who was comfortable, albeit euphoric, with his nonlearning. It began to occur to some psychiatrists that someone was going to have to teach him to read. Pioneer research at this point was begun in a variety of facilities, among them at Hawthorne Center by Ralph Rabenoolik, who found that the greatest number

of emotionally distrubed childern who recovered were among those who were being tutored as part of the therapy.

During the waning days of the psychodynamic approach to nonlearning, another thread of research and practice began to make an impact on the educational scene, the work of Alfred Strauss, Laura Lehtinen, and Newell Kephart and that of Dosa Hagin and Areline Selver with brain damaged children. The concept of brain damage as a cause of nonlearning was apparently a welcome change from the more nebulous, more abstract concepts derived from Freudian psychoanalysis. However, the "brain damaged" era began slowly, with the publishing of Strauss and Lehtinen's book in 1947, and did not emerge full blown until the early 1960's, as a many labeled concept embodying elements derived from a variegated heritage. As a body of theory and research has developed over the past decade involving the child who does not learn, it seems apparent that strands from many disciplines are coalescing in the emergence of special learning disabilities as a significant educational concept.

Each year, I have attempted to delineate trends and issues in the field of learning disabilities which seem to be evolving from year to year. By far the most important issue in the field today is that of definition. In some areas there is still a serious question in the minds of special education over the very existence of learning disabilities. Are we just talking about "dumb kids," as one notable educator suggested to me last week? Is the child with special learning disabilities just the MR kid in the suburbs? Is this not just another label for the emotionally disturbed child? As we look at the trends in definitions, it becomes apparent that the early medical emphasis is being replaced with an educational emphasis. The early emphasis on etiology is being replaced by an emphasis on remediation. The six or seven current definitions which seem acceptable to the majority of practitioners in the field, including the Task Force I definition, the Task Force II definition, the ACLD definition, Kirk's early definition, the definition of the Northwestern Conference, or the National Advisory Committee definition, all have two concepts in common: the first is the intact clause, the second is the discrepancy clause. Most definers seem to agree that the child with special learning disabilities is basically an intact organism. This concept of intactness is expressed differently in different definitions. Some follow Dr. Gallagher's comment in St. Louis at the CEC meeting, when a small group were attempting to formulate a definition acceptable to all factors, "whenever you start to define a horse, you first have to define a nonhorse." Thus, the "nonhorse" part of the definitions may be more specific than the definition of what a learning disability is. We seem to be quite sure that the learning disability is not "primarily due to visual, hearing or motor handicaps, to mental retardation, emotional disturbance or to environmental disadvantage." These are basically intact children.

However, "the discrepancy clause" seems to be somewhat less specific. The National Advisory Committee describes the children with special learning disabilities as those who "exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written language." These may be manifested in disorder of listening, thinking, talking, reading, writing, spelling, or arithmetic.

This definition seems to be one upon which a sound educational program can be based. You will notice that there is no statement of possible etiology in this definition. We seem to have outgrown our need for a medical model around which we can build an educational program. We have learned from the experience of those programs which have included a medical diagnosis of organicity that the neurological examination or the EEG provides a tenuous base upon which to build an educational program. For those of you who are saddled with legislation or a

program which includes some statement of physical disability before these children can be served, I highly recommend that you read, in the February issue of Journal of Special Education, Roger Freeman's article entitled: "Special Education and the Electroencephalogram: A Marriage of Convenience." After reviewing the extensive research involving the EEG, Dr. Freeman recommends that special edu - cation consider at least a trial separation from neurology and the EEG.

My reason for spending this much time on the evolution of a viable definition is that I am convinced that the most important decision you will make is that of the definition--because your definition will dictate for you the terminology to be used in your program, the prevalence figures your selection criterion, the characteristics of your population, and the appropriate remedial procedures.

I would like to point out that this emphasis on definition seems to be of more intense concern in the area of learning disabilities than in any other area of handicap.

The question of incidence, or more correctly prevalence, is one that is causing a great deal of difficulty at the present time. "Guesstimates" of how many children there are with special leraning disabilities range from 1 to 40 percent of the total school population. Prevalence is determined directly by the definition used. Dr. Myklebust, in discussing the question of "how many children are there," has said, "Tell me how many you want to find, and I'll write you a definition that will find that many." Using the National Advisory Committee definition, there is some evidence to suggest that learning disabilities exist in varying degrees in children. While the milder learning disabilities may profit from the individualization of instruction in the regular classroom, the more severe problems require special remedial procedures. An extremely conservative estimate of the latter group would include 1 to 3 percent of the total school population, according to the Report of the National Advisory Committee.

Regardless of which guesstimate you elect to use in your program, be assured that you will find that there are too many children with learning disabilities which require educational modifications to be served by special class placement or to be individually diagnosed by trained specialists.

You will also find that learning disabilities come in all shapes and sizes. The varying degrees of learning disabilities in children require varying degrees of intensity of service in the schools. To describe an "exemplary program" for all children with learning disabilities, as if any one type program will serve all children, is to oversimplify an extremely complex problem.

To summarize progress to date is to come to grips with the possibility that we are going around in circles rather than making progress:

Methodologically, we started with visual perception, then went to sensorimotor training, then to ocular pursuit, then to the establishment of cerebral dominance, then to stimulus reduction, then to auditory perceptual or language training, then to multisensory training, then to integration of sensory stimuli, then to an analytic approach, and then to behavior modification. Academically, we have gone from Orton to Fernald to Gillingham to Spaulding to SRA to BRL, to Phonovisual, to the Language Master, to ITA, and now to any reading method which has a decoding emphasis. The focus of remediation has been passed from the social worker to the pediatrician to the psychiatrist to the psychologist to the neurologist to the endocrinologist and now back to the teachers.

So much for where have we been! It is much more difficult to discuss where

are we going! I am indebted to Dr. Samuel Kirk and Dr. Masland for confirming some of my ideas about the future in the speeches they made at the recent ACLD conference in Fort Worth. I am also indebted to Alice Thompson for sharing some of her ideas in a paper she presented to the California CASE group last year. By pooling these expert opinions, I have gathered the courage to make some predictions about the future.

I predict the special learning disabilities will continue to gain prestige as a respected category of special education.

As learning disabilities stablizes, so should those areas which seem to be clouding the picture at the present time: language problems, aphasia, dyslexia, remedial reading slow learners, and some emotionally disturbed and mentally retarded children.

It seems quite clear that the National Advisory Committee definition includes children with developmental aphasia. Thus, a district with a program for children with learning disabilities would automatically include aphasic children in such a program.

My second prediction involves a proliferation of new programs and services for children with special learning disorders. Pressure from parents will continue to keep pace with the demands of society. As administrators it is urgent that you come to grips with some of the pressure points involved in the program, and plan carefully to avoid the booby traps. By all means plan programs of varying degrees of intensity to match the varying degrees of severity of learning disabilities in the children. You will need (a) consultants to regular classroom teachers, either on an itinerate basis or on a one consultant per building basis; (b) you will need some resource room teachers, where children are bused to the school to spend a portion of each day in the regular class and a portion in the special class; (c) you will need some self contained classes for the most severely involved children where the major emphasis in the self contained classroom should be on return to a resource room program in the school in which the child "belongs" since research and experience indicate that the farther a child is removed from the normal educational program, the more difficult it becomes to return him to the mainstream. Major emphasis needs to be placed on the individualization of instruction for most children with learning disorders within the regular classroom. I cannot conceive of the pressure in one of our states for residential schools for these children. And yet, this was the major thrust of both parents and educators. And why? Because the legislation was written in such a way as to reward residential placement, but not to support public school classes. If your state is faced with the problem, roll up your sleeves and become involved in rewriting the legislation, but don't subscribe to the notion of packing these children off to boarding - or hospital schools.

By the same token, the best prevalence figures we have suggest that most districts would have enough children to start a class in their own district, rather than as part of a joint agreement or cooperative arrangements. To bus most children with special learning disorders to a special school run by a cooperative, as I have seen done in N.G. is to compound an already complex problem. It may be necessary to provide diagnostic services on a cooperative basis, but major emphasis on programs needs to be placed at the local district on local building level. The reunifications for preservice and inservice training are monumental. We need to work toward a drastic change in attitude on the part of regular classroom teachers from the current "He doesn't belong in my class" to an attitude of "What can I do to help him?"

My third prediction in answer to where are we going involves early identification of these high risk children and a complete change in attitude toward our interest in and responsibility for preschool children. There is no question that these children can be identified in kindergarten. Many of them could be identified and served at four. The current trend toward mandatory education at age three is one that I believe will continue to gain support at all levels. Impetus for this will come from the one hundred demonstration programs funded under PL 90-538, the Handicapped Children's Early Education Assistance Act.

This also suggests that speech correctionists will begin to become more directly involved in the limited disorder program, that the division of labor between DCCD and DCLD might will be reexamined.

Dyslexia will be viewed as a subset of learning disabilities. Severely disabled readers will be programed just as severely disabled learners of any other type. It is probable that remedial reading populations are now made up of some children who have special learning disabilities and some whose failure to learn is due to causes outside of the child. Thus, care will need to be taken by administrators to avoid duplication of services, without cutting out needed services to children with corrective reading problems. It is probably safe to say that the current practice of some districts of having parallel programs serving the same child will be discontinued.

It seems well within the realm of probability that the National Advisory Committee on Dyslexia and Related Reading Disorders will, in their final report due in June, help to clarify the relationship between limited disorders and dyslexia, thus providing a base for better articulation between reading specialists and limited disorder specialists at the national, state, university, and public school levels. Limited disorder may be the bridge which will increase communication and articulation between elementary education and special education, since most children with SLD will not need a self contained special class, but will remain in a regular class for part of the day.

The current furor over "an IQ of go or above" seems quite likely to dissipate rather quickly, as psychologists and educators continue in their disenchantment with the IQ as a measure of function in children. We are now aware that IQ 's in many children respond to programs aimed at training intelligence, and are unstable enough to warrant careful matching to performance in and out of the classrooms. The number of hours of expensive professional time being wasted on trying to decide whether a child with an IQ of 79-81 is mentally retarded with a learning disability or merely a limited disorder should reduce sharply, as classes for mentally retarded children begin to individualize instruction and utilize the concepts of clinical teaching commonly found in limited disorder classes (requisitions and ordering).

In the immediate future, I predict that little or no valuable time will be wasted trying to decide whether a child is primarily emotionally disturbed or learning disabled. In the normal school population, the child with a LD will stick out like a sore thumb. The fact that he also has emotional problems is a given. Psychotic, schizophrenic and autistic children will also stick out like sore thumbs, and obviously need to be programed differently than the child with minor adjustment problems. Between these two extremes lies a large group of conduct prob - lem learning disabled children who can profit from a carefully structured, purposeful, learning focused classroom atmosphere, regardless of the label for the condition.

If you do not have a program, I heartily recommend that you start with early

identification and programing at the kindergarten or first grade level. This is a difficult place to start, since awareness of failure on the part of the child has not yte hit his parents or his teachers. You will also be fighting a large segment of kindergarten teachers who still subscribe to the "leave them alone and they'll come home" philosophy. At the very least, begin to reexamine your entrance policies for high risk children and design a program to serve them rather than sending them home for another year in an environment which already has them behind their peers.

My fourth prediction involves the relationhhip between learning disabilities and cultural deprivation--or between special education and compensatory education, if you will. We have already excluded culturally deprived children from the learning disability population by definition, but this does not solve the practical problems for you. I am not too hopeful that learning disability concepts are going to have a great deal of impact on the problems of the culturally deprived. I am quite convinced that the answers to these problems will need to involve total societal involvement, of which special education is a small part. There is no question that massive changes must take place in the community, in the home, and in the school system before we begin to find answers to these learning problems. But let us not fail to provide for the smaller number of children with special learning disabilities of unknown etiology, while we wait for answers to the much larger problem of cultural deprivation.

My fifth prediction involves our current concept of the diagnostic process. At the present time diagnosis is primitive, time consuming, expensive, and frought with problems of validity and reliability. Our instruments for diagnosis and prediction are at best rudimentary. Test constructors will continue in their efforts to provide valid microscope measures of cognition. As psychologists become more disenchanted with the traditional tools of their trade and as a new breed of psychologists replaces those left over from the Rorschach days of their Veterans Administration training, you will begin to see more creative use of some of the good diagnostic instruments available to your school psychologists.

My sixth prediction involves remedial methods. We seem to have tried all the global approaches to remediation that can be conceived. Now we are ready to begin differentiating the teaching methods so that we will see the emergence of real clinical teaching, where the goal is a precise match between the cognitive style of the learner and the cognitive demands of the task. We will be seeing emphasis placed on the diagnostic role of the teacher, as well as the training of specialists who are both psychoeducators, diagnosticians, and clinical teachers.

In the foreseeable future I suspect that such neuropsychologists as Karl Pribram will be able to tell us something meaningful about the chemistry of learning in human children. At the present time, they are quite knowledgeable about earthworms, rats, pigeons, and even chimpanzees, but not about children. I am not willing to sit around and wait for the "pill" which will prove to be the panacea that will solve all of the problems of children who do not learn. In the meantime I hope that you will be as aware as I that children who do not learn do not do so for an infinite variety of reasons. For some of these it is because of a special learning disability. For these, we can and should provide special educational programs.

ABSTRACT

OUTPATIENT DIAGNOSTIC AND REMEDIAL SERVICES FOR CHILDREN WITH CEREBRAL DYSFUNCTION

by

Howard L. Millman

The necessity for the child guidance clinic to diagnose and effectively treat children with minimal cerebral dysfunction was discussed. These children are still frequently mislabeled as behavior disordered or emotionally disturbed. When the ideal diagnostic center is not available, a coordinated effort is needed to totally evaluate the child. A clinic's staff should be sensitized by distribution of the excellent literature available. The most sophisticated battery of psychological tests that can be assembled should be administered whenever serious learning problems exist or suspect behavior is reported. In many cases, a clinic may refer a child for a pediatric neurological examination, a developmental optometric examination, and/or a possible speech and hearing evaluation. The need is noted that recommendations based upon psychological testing should be relevant educationally and should outline specific action to strengthen weaknesses. When parents are informed of the diagnosis, great care must be taken to describe the findings in a meaningful, helpful manner.

The following recommendations are described in detail: Special school, special class, or supplemental training; medication by the pediatrician, neurologist, or clinic psychiatrist; developmental optometrist, for complete visual evaluation and visual motor training in areas of deficit; individual or group counseling on psychotherapy for the child when indicated; parents joining appropriate associations; recreational programs including specific gross and find visual motor activities; and parent counseling group. It is time for us to transcend our own professional roles and become more sensitized to the profound consequences of an improperly functioning central nervous system.

PERCEPTUAL BEHAVIORS AND READING DISABILITIES: EMPHASIS ON THE NEUROLOGICAL IMPAIRED

by

Gerald B. Fuller

The field of reading disability has been emerging as an area of great concern and interest, not only for the educator, but for the psychologist, speech and language specialist, and physician. They all have something to say about children who experience reading difficulties. The definitions of reading disability vary; some are all inclusive; others are restrictive and deal with subtypes of categories within the broad realm of reading disabilities. The purpose of this paper is to report on our research over the past five years with children according to three categories of reading disorders on certain perceptual motor functions.

We have been employing a relatively new diagnostic instrument in our work. This instrument is the Minnesota Percepto-Diagnostic Test (MPD) (Fuller & Laird, 1963, Fuller & Hawkins, 1967; Fuller, 1969) which is a clinical and research in-

strument designed to assess visual perception and visual motor abilities. It consists of six Gestalt designs which the subject copies. The reproduced designs are scored for degrees of rotation that each figure deviates from its original axis. The rotation scores have been adjusted for both IQ and age. In addition, two other scoring variables are used: separations and distortions, especially to facilitate the diagnosis of brain damage.

The test has been used to determine if there are perceptual differences in reading disability and whether a more definitive differential diagnosis by etiological groups can be made. Specifically, we have been concerned with three groups of reading disability: primary, secondary, and brain damaged readers with particular research on the latter group.

Population

A group of 412 children ranging in age from 7 to 15 has been tested. Those in the reading disability group were identified by the school as having a reading or learning problem and as scoring one and a half years or more below the MA of performance on the Gates or Gray's Oral Reading Tests. All children had received the Wechsler Intelligence Scale for Children (WISC). WISC performance IQ's were utilized since they appear influenced less by reading disability than the verbal IQ's. The children were evaluated by a team not connected with our research. The team consisted of psychiatrists, social workers, psychologists, and remedial reading specialists. The team classified them into the three categories of reading disability.

The 412 subjects were classified as follows:

1. Good Reader--This group, the control, was composed of 200 subjects who had not been considered a school or social problem and who scored one or more years above average on reading tests. Their mean IQ was 111.21; age 11.04; education 9.04 grades.

2. Primary Reading Disability--This group consisted of 52 children whose capacity to learn to read was impaired without specific evidence of brain damage being suggested in history or on neurological examination. Their defect was an inability to work with letters and words as symbols. Hence, there was an inability to integrate the meaningfulness of written material. Their mean IQ was 99.44; age 10.82; education 7.91 grades.

3. Secondary Reading Disability--This group consisted of 90 children whose capacity to read was intact but not utilized sufficiently for the child to achieve a reading level appropriate to his intelligence. Reading difficulty in these cases was symptomatic of a basic disturbance in their emotional life. The child's normal reading potential may have been impaired by negativism, depression, anxiety, emotional blocking or other external influences such as limited schooling. Their mean IQ was 101.26; age 10.14; education 9.52.

4. Brain Damaged Reading Disability--This group consisted of 70 children whose capacity to learn to read was impaired by obvious brain damage and is, as a rule, manifested by neurologic defects. Their mean IQ was 89.23; age 11.83; education 7.85.

Table 1 presents the means and standard deviations ofr good readers and reading disability groups on rotation (T-score), intelligence, age, and education.

TABLE 1

Means and Standard Deviation for Good Reader and Reading Retardation Groups on Rotation (T-Score), Intelligence, Age, and Education

Diagnostic Category	N	Rotation Mean	Rotation SD	IQ Mean	IQ SD	Age Mean	Age SD	Education Mean	Education SD
Good Reader	200	58.26	4.84	111.21	9.24	11.04	2.51	9.04	5.30
Secondary Reading Retardation	90	42.11	5.32	101.26	11.62	10.14	2.70	9.52	4.21
Primary Reading Retardation	52	54.75	4.10	99.44	11.28	10.82	2.42	7.91	3.34
Organic Reading Retardation	70	29.24	7.14	89.23	10.84	11.83	2.63	7.85	3.02

Administration and Scoring of Test

Each child was administered the MPD cards individually. Care was taken to require the stimulus card to be in direct alignment with the sheet of paper and to not allow the subject to turn either card or paper. Each subject was told, "I am going to show you six cards, one at a time. Each card contains a figure. Copy the figure the best you can on this paper."

The scoring of rotation consisted of the following steps:

1. The reproduction of the design from each one of the six cards was scored for actual degrees of rotation by means of a protractor.

2. After the actual degrees of rotation were recorded, then the degrees of each design which were not rotated more than 25° were recorded as measured under "corrected score." For each design that exceeded 25°, the corrected score is 25. That is, no one design was allowed to be scored more than 25.

3. The corrected scores of the six designs were totaled. No total could exceed 150.

4. The total corrected score was then transformed to a T-score which had been adjusted for both IQ (mean of 50, SD of 10) and age by entering appropriate table in the manual.

A scoring system has also been devised for separations, which involves spacing the circle and the diamond incorrectly in reproduction (the circle and diamond being connected in the standard) and loss of gestalt (distortions) in which figures have lost their identity or are distorted.

These two scoring variables have been divided into the following three areas: (a) separation of the three circle-diamond figures (SpCD), (b) loss of gestalt in the three circle-diamond figures (DCD), and (c) loss of gestalt in the three dot figures (DD).

The six designs are scored for the frequency with which a distortion or separation occurs. For the three circle and diamond patterns a separation score of

TABLE 2
Distribution of a Criterion Sample of 83 BD and 86 NBD Retardates in Three Separate 9 Celled Tables, Each Based on a Pair of MPD Scores

SpCD - DD						SpCD - DCD						DD - DCD					
Cell Number of Frequencies					(100 fm)	Cell Number of Frequencies					(100 fm)	Cell Number of Frequencies					(100 fm)
SpCD	DD	f_{BD}	f_{NBD}	Modal Cat.	f_{BD} & f_{NBD}	SpCD	DCD	f_{BD}	f_{NBD}	Modal Cat.	f_{BD} & f_{NBD}	DD	DCD	f_{BD}	f_{NBD}	Modal Cat.	f_{BD} & f_{NBD}
0	0	29	66	NBD	69.3	0	0	14	53	NBD	77.6	0	0	22	56	NBD	71.8
0	1	3	6	NBD	66.6	0	1	2	7	NBD	77.7	0	1	4	11	NBD	73.3
0	2,3	11	3	BD	77.7	0	2,3	18	12	BD	60.0	0	2,3	20	11	BD	64.5
1	0	11	5	BD	68.7	1	0	5	4	BD	55.5	1	0	3	2	BD	60.0
1	1	3	0	BD	100.0	1	1	3	2	BD	60.0	1	1	4	0	BD	100.0
1	2,3	3	2	BD	60.0	1	2,3	9	1	BD	90.0	1	2,3	6	1	BD	85.5
2,3	0	12	3	BD	80.0	2,3	0	9	4	BD	69.2	2,3	0	5	2	BD	71.4
2,3	1	6	1	BD	85.7	2,3	1	5	2	BD	71.4	2,3	1	4	1	BD	80.0
2,3	2,3	10	0	BD	100.0	2,3	2,3	14	1	BD	93.3	2,3	2,3	15	2	BD	88.2

three is possible, the same maximum score as for distortion of these designs and also for distortion of the three dot patterns. One then enters an actuarial table for the three predictors (see Table 2) containing three 9 cell blocks which contain estimated cell validities for brain damage.

Table 1 illustrates that the good reader has a mean rotation T-score of 58.26; primary reader, 54.75; secondary reader, 42.11; and organic reader 29.24. Table 2 shows the frequency of converted T-scores of rotation for good readers and reading retardation groups.

TABLE 3

Frequency of Converted Scores (T-Score) of Rotation for Good Readers and Reading Retardation Groups

Rotation (T-score)	Good Readers (N=200) f	Secondary Reader (N=90) f	Primary Reader (N=52) f	Organic Reader (N=70) f
76-80				
71-75				
66-70	2		5	
61-65	10		9	
56-60	83	4	18	
51-55	102	2	11	
46-50	3	6	6	
41-45		8	2	
36-40		27	1	2
31-35		24		7
26-30		8		8
21-25				12
20-below				31

Inspection of this table indicated that the ranges of T-scores of the different reading groups do not show a great deal of overlap, making it possible to establish cutoff scores which will enable the best predictability of which reading group a child belongs in.

Table 4 gives the cutoff and percent of good readers and reading retardation groups correctly identified.

TABLE 4

Cutoff Scores and Percent of Good Readers and Reading Retardation Groups Correctly Identified

Cutoff T-Scores	Groups	N	Number Identified	Number Misidentified	Percent Correct Identification
45-80	Good Reader	200	200	0	100
45-80	Primary Reader	52	46	6	88
31-44	Secondary Reader	90	70	20	77
0-30	Organic Reader	70	61	9	87

It can be seen from Table 4 that a cutoff score of 45 to 80 will correctly identify 100 percent or all of the good readers. Using the same cutoff, 88 percent of the primary readers are correctly identified which is 46 out of 52. The frequency distri ution of scores was almost identical for both the good and primary readers. For the secondary reading retardation group, a cutoff score between 31 to 44 was established, resulting in identification of 77 percent as 12 cases fell above and 8 below the given range of rotation. A cutoff score of 30 and below for the organic reader resulted in correctly identifying 87 percent of this group. Nine of the 70 were misidentified and fell into the secondary reading group.

Discussion

If a child has been referred primarily because of a reading or learning problem rather than a behavioral problem he can be classified as: (a) primary reading retardation if the T-score is 45 or above; (b) secondary reading retardation if the T-score is 31 to 44, or (c) organic reading retardation if the T-score is 30 or below.

Primary reading retardation. The fact that the good readers and primary readers have the same cutoff T-score is well worth noting. It appears that problems of visual perception and orientation are related to reading impairment in two of the three reading disability types (secondary reading disability and organic reading retardation), while in the primary reading disability they are not significant factors (Fuller & Shaw, 1963).

In the primary reader it appears that his problems are associative rather than perceptual. The word or letter form is perceived but the symbolic significance is not grasped. This implies that a child with such difficulty does not have a word or letter reversal but does see them correctly in their spatial organization. However, he is unable to associate words with one another in such a manner as to furnish meaning or to give him understanding of a given sentence. As Rabinovitch (1959) has stated in his definition of primary reading disability, "The defect is in the ability to deal with letters and words as symbols, with resultant diminished ability to integrate the meaningfulness of written materials."

Perhaps one may assume that the visual processes from sense organs to and involving the visual sensory projection area do not differ from those in the normal child. But, beyond this, something has failed to transpire in the association areas. Primary reading disability thus resembles receptive aphasia in a lack of

comprehension. It is not an aphasia, however, because comprehension has not been lost but rather has never been fully acquired.

Such a child will not only fail to profit under normal classroom practices but also in remedial classes, if the emphasis is upon perceptual training which stresses figure ground and spatial orientation. These procedures may not be appropriate to his problem. For example, he has little if any difficulty in appreciating which of two objects is wider, but he cannot define their width in feet. The MPD test reveals this. Capable of perceiving configurations, he is also able to demonstrate the accuracy of his perception. However, it is very difficult or even impossible for him to conceptualize his experience. The same explanation holds for letter forms which are perceived; however, their combination into words has no meaning.

On psychometric tests this group of children has greater difficulty with abstract or conceptual thinking at both a verbal and nonverbal level. There is also a tendency for them to perform much better on performance tests than on verbal tests, suggesting a general verbal incapacity. Qualitatively, these children display considerable inferiority and frustration and tend to blame themselves for being unable to read. Remedial reading therapy is recommended in the perceptual conceptual area. It might be that a visual auditory tactile kinesthetic approach might be the promising one.

Secondary reading retardation. The result of being emotionally disturbed is that this type of child will be less aware of the surrounding stimuli that are important visual cues for reading (Fuller, 1964). This child will be affected both by the figure ground combinations he encounters and the number of kind of cues available. In addition, he has difficulty handling cues selectively, ignoring those which are inappropriate, which a good reader must be able to do. Since the secondary reader is emotionally disturbed, and the more distrubed he is the less ability he has to select visual cues with which to orientate himself, the more likely he will be to misinterpret or to distort the ones that are available.

In the secondary reader considerably more rotation on the MPD test is produced by his emotional state which hampers his ability adequately to interpret or utilize available cues; that is, under stress, threat, frustration, or general excitement this child does not perceive accurately which is basic to the reading process. Hence, the greater the emotional problems, the greater is the perceptual distortion (rotation on the MPD). Further, he becomes unsure of incoming signals or stimuli, which increases the number of stimuli to be discriminated. This also leads to poor self confidence and feelings of inadequacy, since the secondary reader is often never sure of the appropriate response.

This child's capacity to read is intact but is utilized insufficiently for him to achieve a reading level appropriate to his intelligence. His reading difficulty is only one symptom of a basic disturbance in his emotional life, although many times the major one. The secondary reader (as opposed to the primary reader) does manifest a disturbance in visual perception and orientation which is related to reading impairment. On psychometrics these children show, for the most part, impairment of social judgment. There is less discrepancy between the verbal and performance IQ's of this group. In addition, verbal IQ is usually higher than for the primary group.

Since the techniques of reading in the secondary reader are basically intact, it will be necessary to motivate the child to utilize his emotionally impaired capacity. Therapy is needed to handle the basic adjustment problem to which the reading problem is secondary, thus helping to release his learning potential. Specific reading remediation is also needed to help him increase the skills in which he is

deficient because of earlier blocking or lack of exposure or practice. A good deal of progress is usually noted in this group.

Organic reading retardation. In these children the capacity to learn to read is impaired by brain damage. Different subgroups of aphasia might also be present. The organic reader produces the most rotation of the three reading groups on the MPD test, perhaps because of a combined effect of neurological deficit and anxiety. Too many peripheral cues are taken in, making it virtually impossible to differentiate the relevant cues from the irrelevant. This suggests that the organic sensory processes relative to taking in or receiving stimuli in the environment are faulty. Therefore, the child is unable to decrease the number of stimuli that have to be discriminated and selection does not improve. It appears that the organic reader is more susceptible to interference from irrelevant cues when making a perceptual discrimination and that when such cues are prominent the organic reader's discrimination suffers more than others. The overall pattern may thus cause the child to lose articulation of the individual parts of a pattern, e.g., the interaction of figure and background in the case of the MPD cards.

The organic readers also tended to separate the parts of the figures, especially the diamond and circle, and to distort the figures to the point of the gestalt being unrecognizable in many cases, while this behavior was virtually absent in the other two groups of readers. In a recent study, Fuller and Hawkins (1969), demonstrated that organic mentally retarded children could be highly differentiated from nonorganic mentally retarded children in addition to rotation on the basis of separations and distortions.

This study showed that applying the 3 table prediction system to a cross validation sample of 74 cases, it achieved 63/74 or 85 percent hits on the total cross validated sample. In terms of the two groups, 19/22 or 86 percent of the BD were correctly identified while 44/52 or 85 percent of NBD were properly identified. This system misclassified 3 BD and 8 NBD subjects.

The best method to use to help identify brain damage in children may well be a two step diagnostic procedure. The first step would consist of looking at the rotation T-score and if under 30 the decision might be that the subject is brain damaged. If this T-score is accompanied by separations and distortions the confirmation of BD is that much stronger. The second step would be employed when the T-score is above 30 but separations and/or distortions are still present. In this case the probability of a subject's performance still being associated with brain damage would be very high if predicted ss such by Table 2. The subject should be at least 8 years old before one can employ the prediction table to diagnose BD.

For the good reader, analysis of wholes and integration of parts go together, and the combination of both makes for adequate reading. The organic reader appears to have troubles in these areas, that is, in the integration and differentiation of visual patterns. There is a lack of ability to respond and organize perceptual elements into a total gestalt because of neurological deficits. This is noted in their difficulty with spatial organization on the MPD test, as they lack the ability to integrate parts of a figure and to differentiate figure from background.

On psychometric tests, this group shows many of the usual signs resulting from an organic impairment, such as motor incoordination and extreme concreteness. Qualitatively, these children tend to be hypoactive, inattentive and impulsive, and to have difficulty on items dealing with visual figure ground perception. Remedial reading therapy plus medication are recommended.

In summary, then, it appears that the good reader and primary reader produce the least rotation and the organic reader the most. The secondary reader who is intermediate between these two groups in perceptions will, in the same kind of learning situation, show behavior relatively similar to that of the organic; that is, he will grope for relevant perceptual cues and tend to use nebulous, poorly specified reading responses, though to a lesser degree.

Smith (1968) using the same 3 subcategories of reading disability compared them on a number of selected variables. These included laterality as measured by the Hawthorn Center Concepts-Symbolization Test; Auditory Discrimination Test; the WISC subtests-Digit Span, Arithmetic and Block Design; Memory-for-Designs Test; MPD; and Directional consistency and reading level as measured by the Gates Reading Test. She found the the groups differed on Digit Span, directional consistency, MPD, and reading level. The significant differences were found to be between the primary and organic group with the primary doing the best on all variables except the MPD and the organics the worst. Each group differed significantly from the other on the MPD test. A second phase of Smith's study compared the three diagnostic reading groups to the normative populations on each of the selected variables. She found that the primary group was not significantly different from the normative populations on any of the selected variables. The secondary group was significantly different from the normative groups on three variables: arithmetic and digit span of the WISC and the MPD test. The organic group was found to be significantly different on two variables: WISC digit span and the MPD test.

Other studies by Krippner (1966), Fuller (1964), and Wolf (1968) have established the validity of the MPD test correctly to place subjects with reading problems into one of the three diagnostic reading retardation groups. For instance, in Krippner's study, the MPD agreed with the established diagnosis in 22 of the 24 cases used.

The MPD test has also shown very good discriminatory power in identifying children in general who have been diagnosed as brain damaged (Buros, 1966; Yates, 1966). L'Abate (1966, 1968) presented results which support the usefulness of the MPD as a screening test for cerebral dysfunction in children. He also compared the performance on the MPD of a brain damaged and non brain damaged sample of children with their performance on two other tests of visuo-motor functioning: the Rivised Hidden-Figures and the Benton Revised Visual Retentions. In most instances, the MPD discriminated between the two groups more often and at a higher statistical level than the other two tests. The MPD scores were positively correlated with reproduction errors on the Benton and inversely with the figures correctly identified on the Hidden-Figure test.

Results of a study by Kreitman (1966) on 14 children who had been referred for a psychological evaluation and were diagnosed as having organic dysfunction on the basis of consistency of agreement between psychological test results (excepting the MPD), school behavior, social histories, and medical findings indicated that all the children obtained a raw score on the MPD test that would place them in the brain damaged classification.

Schwartz and Dennerll (1968) carried out a study with the purpose of discovering the differences, if any, on three neurophychological tests (MPD being one of them) between groups of children referred to an out patient epilepsy center and emerging with a diagnosis of: convulsive disorder, questionable, or nonconvulsive. Their results with respect to degrees of rotation indicated a clear progression of higher (more rotation, hence more impaired) scores as one progressed from the nonconvulsive to the convulsive disorder group.

Since the MPD test now has three scoring categories the question can be raised: "What kind of brain damage is related to what kind of errors." This problem of specificity of functions and localization has been under scrutiny and the preliminary results can now be reported (Zalen, 1969).

Sixty-two subjects who produced either distortions or separations on selected stimulus cards (1, 3, 5) of the MPD test were studied. These subjects were from the Caro State Hospital for Epileptics. They had a mean age of 16.5 years a and a mean IQ of 61. In addition to the 3 MPD cards all subjects received medical, electroencephalographic, and psychological examinations.

The EEG findings were then correlated with MPD performance according to the scoring criteria for separations and distortions. Thirty-two subjects manifested EEG signs of left hemispheric damage, 26 of these separated the diamond circle stimuli. Thirty showed right hemispheric damage or undetermined lateralization or organic damage, 26 of these did not separate the diamond circle stimuli.

Both groups showed distortions about equally; however, 81 percent of those who showed distortion plus separation were shown to have left hemispheric focal damage. Of those who showed distortion without separation, 87 percent had right hemispheric damage or no lateralization according to their EEG examination. The mean IQ's for the two groups were not significantly different.

Distortion of stimuli proved a nonsignificant discrimination of lateralization and was associated primarily with EEG signs of occipital lobe involvement.

It appears that diamond circle separations of MPD stimuli can be used to determine hemispheric lateralization in most brain damaged retarded subjects. In those cases (N=10) in which this determination was not possible, the subjects yielded EEG signs of shifting lateralization.

Separation would seem to reflect a more serious impairment of perceptual motor functioning than distortion. Also it is possible that a dominant hemisphere for perceptual motor functioning exists. The results of these findings point to the intactness of the left hemisphere as being crucial to adequate perceptual motor response.

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ABSTRACT

PERSONAL ADJUSTMENT TRAINING FOR YOUNG ADOLESCENTS WITH LEARNING DISABILITIES

by

Sol Gordon

The greatest handicap of learning disabled adolscents is their difficulty anticipating the impact their behavior has on others--generalizing from experiences. This may be due to their isolation during crucial stages of learning. Furthermore, constant failure and criticism has led to in many cases a lack of self confidence,

a low self concept, and feelings of inferiority. To counteract this, a group of such handicapped youngsters can work together to overcome their problems--they can succeed in an uncompetitive group like this, in which they don't feel inferior.

Parent counseling in addition to counseling the youths themselves often proves valuable. Sex information is vital to the adolscent with a learning disability. It is sometimes advisable to obtain a tutor for the adolescent--not the parent, sibling, or teacher, but a high school or college student.

Handicapped young people, who are reasonably well adjusted psychologically, will function reasonably well as independent adults despite their handicap.

THE PRIVATE SCHOOL AND ITS PRACTICAL RELATIONSHIP

by

Edward G. Scagliotta

A Community Image

> Some parents have considered it necessary to send their (handicapped) children to private schools which claim special education services. It is possible under these circumstances for inadequate or inappropriate programs to be provided such children, sometimes at a high fee. Children and parents are victimized by the unsupportable claims of the directors of private educational institutions. [Commission on the Education of the Handicapped, n.d.]

--A reflection of an attitude, isolated perhaps, but nevertheless a published expression of position by a select group of New Jersey professional and lay citizens. More than once, these implied directors have borne the brunt of jesting colleagues in the public world who, through capriciousness, suggest personal prosperity and affluence as a direct result of the private circumstance. Mere association with a private educational enterprise seems to have become synonymous with some sort of unwholesome insipidness. This may be true notwithstanding the fact that in private education there are found many outstanding educators dedicated to and inbued with the spirit of adequately preparing the handicapped. These educators have been described and depicted as operators or manipulators in a derogatory manner as a result of their special ability to be most frugal and economical in managing schools and programs. Through no choice of their own, but simply to survive, they have had to become successful improvisators much to the envy and suspicion of their public cohorts. In short, as the quotation implies, the special private school may cast a shadow of doubt as to the integrity and trustworthiness of those who make such a system possible. Lifting this shadow to reveal the positive effects private systems have had in education over the years should be the goal of everyone holding true the philosophy that the public schools may not always be able to provide for all the individual human differences that come under their jurisdiction.

How, then, can this appearance of suspicion and question be converted to understanding and recognition? How can the private school present itself favorably in all circles?

The private school has been charged by society with the responsibility of creating an educational atmosphere acceptable to those to be served. What needs to be done is the establishment of educational guidelines and criteria exceeding anything conceivable by the public school to insure a portraiture eloquent to all. Leadership and innovation in special education, a forte of the private school, must be continually shared to strengthen people's belief in the permanent contributions made to the education and training of handicapped children.

Community Service

The community in which the school is geographically located should constitute an area of continuous involvement--involvement being the medium by which to introduce the purpose and direction of private education. Association with the general public has long been one of the primary objectives of the private school, especially in funding activities. Yet, such activities should by no means represent a single goal for community cohesion. Since the word community in itself means communicating and communicating means giving, then let the involvement take form as a leading contributor of service to the community at large.

Such contributions of worth may be administered in numerous ways. Consolidation of both public and private agencies for the purpose of sharing problems and their possible solutions not only allows for professional exchange, but also for the establishment of mutual respect for what each is attempting to accomplish. Meetings of interdisciplinary agencies and the ensuing discussions may aid in the internal betterment of a participating member as well as fulfill or improve a public need. For example, a salary for professional services may be representative of a major internal agency problem while policy in biracial adoption of children may be of direct community concern. Nevertheless, their solutions, jointly established by both the public and private agencies, does much to bring the rendered services of the private school to the attention of the public layman and professional.

Every private school would be wise to have its own speaker's bureau composed of erudite and astute staff members capable of reaching all levels of communication. These courtesies, delivered gratis, may be extended to groups of a civic, fraternal, or professional nature. Speakers had better not always be concerned with selling the school, but rather present their subject in a nonsolicitous manner, being as impersonal as possible. To disseminate information ought to be the objective.

It goes without saying that the private school should continually serve as a community resource and referral agency. In the event a direct benefit cannot be afforded, it becomes paramount that the private school make every effort to appropriately guide an inquiring individual. Many lasting friends have been gained as a result of a courteous and considerate concern for the casual or frantic caller seeking help.

Exposure to the public may be experienced by participation in the formal dissemination of information. Through a voluntary association of sponsoring public and private agencies an annual colloquy or symposium bringing to light current issues in special education is feasible (Symposium, n.d.). A conference of this nature may be geared to specific and sophisticated audiences of teachers, psychologists, social workers, physicians, etc., or be all inclusive, implying parents as well. Either way, information is brought to the community with a private school as a contributor and partner.

Information propagation need not always be a joint enterprise. Occasionally

an individual school may have a direct special service to impart. Such is the case of The Stevenson Resource File, a collection of confidential data supplied by invited private schools offering special accommodations and facilities. This contribution is dispensed without cost and is willingly forwarded to schools and public welfare agencies on request. Other schools have opened their doors to the public for the purpose of demonstrating special techniques, methods, and material , while still others have initiated periodic workshops to share unique abilities with their public colleagues. It is not at all uncommon for the private school to be a community leader of special education by providing inservice teacher training programs, many times with college or university affiliation, resulting in graduate credits for the participant who completes the program successfully. Information sessions for parents on a scheduled basis, with an established course of study, again open to the public, have met with success on local levels (Scagliotta, 1965).

On occasion, theprivate school has been parsimonious with experiences and knowledge, guarding their successes with the utmost secrecy and allowing only visitations of short duration. Or, if these successes are genuinely shared, they are done so at a cost to the recipient. Neither practice endears the private school to the community. Professionals wishing extended study in a private facility should be accommodated and incorporated into the general scheme of the school's operation, thereby affording the opportunity to be absorbed in the system without upsetting the established schedules and routines.

The lament, "publish or perish," has generally been associated with institutions of higher learning, but it can also appropriately apply to the private school. What better way is there to communicate the educational story, device, technique, method, or program than through the media of the professional journal, monograph text, or educational development laboratory? In this way publishing or developing imparts a community benefit as well as bringing the private school to the attention of the professional and the well versed parent. Outstanding contributions by the private school personnel in the field of special education are commonplace and are reflective of the prominent learning innovations developed in this nation. These productions are the result of extensive academic freedoms and independence of consideration not always made possible at public centers controlled by taxation and citizen sentiment. Through the freedom of academic pursuits, the private school has emerged as one of the nation's leaders and developers of contemporary special educational thought.

Utilization of Community Resources

Education need not be confined to the four walls of the school building. Reaching out into the community and tapping the general and specific learning resources inherent to all towns and cities helps open up the real world of living to handicapped children. Often denied exposure to these experiences by parents incapable of coping with their children in public places and facilities, these children look to the school to make such visits possible and cognizance meaningful and useful. After all, this is what education is about--to bring first hand to the child a living learning environment. In this way, the community, with its firehouses, library, civil defense, museum, government, radio and television stations, businesses, and industries, becomes a laboratory for learning.

Communities are also made of adults--people other than the child's mother and father. These people, too, have a stake in the education of the child. Yet, often the child, because of his sheltered environment, has not been introduced to other personalities and consequently may be unable to properly associate and relate. In bringing community resource people to the school the child is exposed to "real" people, other than his teacher, who can assist in providing experiences

based on their individual skills. It is these people who bring to life the textbooks that some children are unable to manage. The adult participation in the child's welfare will in turn mirror an attitude toward the school as well. If the involvement is satisfying and empathetic their message will be carried to the community far and wide, a testimonial difficult to surpass.

Communities are also made of children--children other than the child's handicapped peers. These community resource people should also be brought to the attention of the handicapped, and vice versa. Sometimes it becomes easier for children to work together, sharing and helping, with reciprocity as an outcome. The "buddy system," a pairing of a handicapped child with a normal peer, has been an enriching, rewarding inspiration beneficial to both parties. Such a partnership results in a mutual respect in developing a workable situation between two opposite but not opposing individuals. The buddy system works both in the school program as well as in the recreational areas in the community itself. Modifications of this pairing system have been widely and successfully used in a variety of learning experiences.

Groups of people, some who never set eyes on the school or children, may respond favorably toward the educational program. These people are representative of many diversified service groups in the community. Their contributions may be in the capacity of collectors, duplicators, reproducers, or innovators of needed materials and equipment. Although their efforts are geographically apart from the school, they are close to the hearts of those who count on their keen interest and support.

In tapping community resources, the private school is offering its children, staff, and educational and therapeutic program to the scurtiny of the citizenry. By doing this, the school, in essence, is asking the public to evaluate through personal involvement, with the purpose being the conveyance of their thoughts, feelings, and final judgment to the community at large. It is hoped such assessment will always be unequivocal.

Physical Appearance

Although most certainly of secondary importance is the physical appearance of the private school, it still requires consideration here for it does create an impression on initial contact. Too often, due to expediency and cost, private educational programs are found in church rooms, basement storage areas, unoccupied stores, and frequently old mansions. Adequate as these may be for physical comfort, they do, by no stretch of the imagination, exemplify a school.

Stereotypically, a school is composed of classrooms, usually on either side of a corridor, drinking fountains in the halls, a nurse's room, flagpole, administrative offices, a well equipped playground, etc. In other words, the public has established in their minds preconceived notions of just how a school should look. Anything less may create an uneasiness about what is going on behind the walls. Therefore, it behooves the private school to make every effort to adapt their physical structures to the general public concept.

Of more significant consideration is the physical impression made on the handicapped child who will use these facilities. He may be sent to a school which structurally has no relationship to his idea of what a school is. This concept may further support his feelings of defeat, inferiority, and rejection resulting in a negative attitude toward his educational pursuits. He needs, much more so than any other child, a feeling of belonging to a "normal" environment. The very physical edifice can do much to elicit positive behavior.

Epilogue

The purpose of discussing the special private school in relation to the greater community stems from a paucity of recognition of the tremendous need and value of this institution in society. Too many adverse inferences have been made. The time has come to reveal the true colors of private education and reap the just rewards. In order to accomplish this, let us strive in our daily associations with the community and its people to continue to make the private school a dignified and stately image, a master teacher of the handicapped, and a noteworthy innovator of special education.

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ABSTRACT

A PROGRAM OF LANGUAGE REMEDIATION

by

Douglas E. Wiseman

A spectacular increase in the recognition of the role language plays in learning has been due in large part to the introduction of the Illinois Test of Psycholinguistics Ability (ITPA). The ITPA was developed to systematically evaluate the language performance of children, identifying areas of relative strength and weakness. The experimental education of the test was first published in 1961; a revised and expanded version was recently introduced. Seven years of clinical and research experience identified portions of the test needing revision. Improvements and modifications were made, including the addition of three new subtests to the original nine.

A vacuum has existed, however. No remedial program patterned after the ITPA was available. Diagnostic information without remedial recourse is of limited value to the teacher. Needed was a language program that could be prescribed when specific problems were pinpointed by the ITPA. The Language Disabilities Program by Minskoff, Wiseman, and Minskoff (MWM) is an effort to fill this need.

The MWM program was developed to serve as an educational counterpart to the ITPA. The ITPA is used to identify problems--the MWM language disabilities program is used to remediate problems. The ITPA indicates areas of language deficit and provides an indication of the relative level or severity of the problem. The MWM program has been developed to meet the linguistic needs of children by providing appropriate activities in each of the 12 language areas and at graduated levels of difficulty, from the most basic tasks to high level conceptual tasks. For

example, if the ITPA identifies an auditory reception problem, the program has sequentially developed activities available for instant use by the teacher. A severe disability on the Auditory Reception subtest may indicate a low level problem such as auditory discrimination. If the auditory reception disability is at a higher conceptual level, however, activities in listening such as following directions, understanding conversation, and so on, are available. With the introduction of the MWM program, the directive, "diagnosis must lead to remediation" becomes possible.